

Region of Waterloo  
Stage 1 Light Rail Transit Project

Performance Output Specifications  
Article 18  
Construction Criteria

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**ARTICLE 18 CONSTRUCTION CRITERIA**

**18.1 Introduction**

- (a) The purpose of this Article is to provide construction guidelines for the Work. Project Co's solution to the Work shall expand on these guidelines. Project Co's holistic approach to the Work shall be seamless and continuous, with the Work being completed in its entirety with the least disruption to the adjacent businesses, residents and traffic, while providing local and emergency access, and with the fewest post-construction activities following completion of major construction work. The presentation of the specific Construction Criteria requirements within this Article shall not be construed to limit or modify in any way Project Co's responsibility to provide a holistic, comprehensive, and fully functional solution to the completion of the Work.
- (b) This Article defines the minimum construction criteria required of the Work under this Project Agreement. Project Co shall consider Article 18 as complimentary to the Schedule 15-1 Definitions, Acronyms and Cited References, Schedule 15-2 Design and Construction Performance Output Specifications, Schedule 15-3 Maintenance and Rehabilitation Specifications, and 15-4 Operations Specifications. In addition, however, Project Co shall consider Article 18 complimentary to other Project Agreement Schedules not cited or referenced herein. Project Co shall not consider Article 18 as taking precedence over any Schedule or Article within the Project Agreement; rather, the Project Agreement hierarchy of legal precedence in the case of conflicting or similar language shall be utilized to determine which Schedule or Article takes precedence.

**18.2 General Requirements**

- (a) Overview

As a precondition to commencing any construction and procurement activities, Project Co shall provide Technical and Commercial Specifications meeting National Master Specification criteria, and Released for Construction (RFC) Plans advanced to a completion level in accordance with the Project Agreement and Schedule 15-2 Design and Construction Performance Output Specifications. Further, Project Co shall comply with the Project Agreement Schedule 11 on Quality Management and Schedule 10 on Review Procedures, Appendix U Design Management and Submittal requirements. These documents shall be signed and sealed in accordance with the Project Agreement for the Work, and Project Co shall not request from the Region permission to commence construction or procurement activity until the Region has accepted the completed Construction Documents. Project Co shall not commence any construction or procurement activity without the expressed prior written approval and consent of the Region.

Project Co shall clean and maintain installed Work as frequently as necessary and, when requested, to the Region's satisfaction during the Project's duration during construction, pre-revenue testing and training, and just prior to revenue service. This includes but is not limited to Project Co performing adjustments and lubrication of operable components and similar related maintenance functions to achieve operability without damaging effects.

(b) Project Co Workmanship, Control and Responsibility

Project Co shall have complete workmanship, control and responsibility of the Work and shall effectively direct and supervise the Work and all materials to ensure conformity and quality of workmanship with the Project Agreement, its Appendices, Articles, Parts, Provisions, and Schedules as well as the RFP requirements. Project Co shall be responsible for all construction means, methods, materials, phasing, planning, techniques, sequences, staging and procedures, and for coordinating the various aspects and parts of the Work. Project Co shall have the sole responsibility for the design, engineering, erection, operation, maintenance and removal of any temporary works and structures and other temporary facilities and the design and execution of construction means and methods required in their use. Further, Project Co is solely responsible for the coordination of all permanent and temporary work and the interface and influence with and on the permanent Work and final products. Project Co shall design and engineer the Work utilizing new materials in accordance with the Project Agreement except as noted within the Project Agreement as being provided by the Region or others. However, Project Co is responsible for the coordination of said Region and other furnished materials in the performance of the Work. All new materials shall be procured, tested, handled and stored, installed, protected, cleaned, commissioned and maintained in accordance with the Project Agreement.

(c) Construction Scope of Work

Project Co's construction includes but is not limited to aerial, at-grade, and subsurface facilities and plant. Construction activities also include related deliveries, demolition, drainage, environmental remediation, erection, excavation, handling, hauling, historical preservation, landscape architecture and construction, LRT stops and appurtenances, monitoring, OMSF and Yard, railroad work, removal, staging, System work, construction and maintenance of temporary works, testing, traffic signal and control, public and private Third Party Utility relocation work, Project Co utility relocation work and coordination, Design and Construction Works and Public Infrastructure Works (PIW) as defined in the Project Agreement among others. Project Co shall be responsible for, including but not limited to, the following:

- (i) Project Co shall provide support to and coordination with the Region on all traffic announcements and notifications, traffic disruptions, road and/or street closures, temporary road and/or street closures, changes to pedestrian movements at particular roads and/or streets, private property owner and business impacts, access, and deliveries;
- (ii) Project Co shall provide and prepare including but not limited to a Project specific Construction Management Plan, Quality Management Plan and System, Construction Period Emergency Preparedness Plan, Construction/Safety Plan, Project Schedule, Risk Register, Submission Checklist, Schedule of Submittals, Submittals List, and Deliverables, and reviews among others in accordance with the Project Agreement;
- (iii) Project Co shall provide and prepare a comprehensive Project and site specific Safety "Zero Harm" Plan, which shall include but not be limited to, Project Co's policies, procedures, and protocols with respect to all Safety aspects of the Work including Project Co employees and at every level of the anticipated tiered subcontractor personnel up to and including the date of revenue service operation, mandatory 100% Fall Protection and mandatory 100% Tie-Off, training and certifications, where required, at every level, Project Co employee and subcontractor safety incentives, Monthly Project Safety Stand Down Topics and Meeting with all onsite staff and

- employees present at every level including all offsite staff via documented signed attendance records, Project Co and all subcontractor Daily Safety Job Safety Analysis and Job Hazard Analysis (JSA and JHA) Checks, Procedures and Documentation, Project Co and subcontractor Monthly Project Safety Audits including offsite locations, Quarterly Project Safety Reviews and Yearly Safety Outcomes, the Project Agreement and Schedule 15-1 and 15-2 requirements;
- (iv) Project Co shall prepare and manage the Project Schedule including all “look ahead’s”, updates and recoveries;
  - (v) Protection of adjacent structure plans and works;
  - (vi) Temporary works, facilities, and utility service plans and works;
  - (vii) Dewatering plans and works;
  - (viii) Maintenance and protection of adjacent property and access plans and works;
  - (ix) Maintenance and protection of emergency access, egress, and bypass, e.g., King Street Grade Separation and Grand River Hospital;
  - (x) All Federal, Provincial, Region and Municipal archaeological, historic, and park preservation regulations, and protection of significant trees;
  - (xi) Survey, Survey Control, Survey Layout and Stake-out;
  - (xii) Maintenance and protection of pedestrian movement and control;
  - (xiii) Maintenance and protection of traffic control and control devices;
  - (xiv) Maintenance and protection of all public and private utilities;
  - (xv) Restricted working hours and meteorological delays;
  - (xvi) Adjacent property pre- and post-condition surveys and reports, instrumentation plan and procedures, and monitoring plan and procedures and reporting;
  - (xvii) Archaeological and historical significance investigations including a Compliance Monitoring Plan in accordance with the EPR as well as notifications to the Region, as required;
  - (xviii) Temporary drainage, erosion and sedimentation control plans and works;
  - (xix) All air, noise, vibration, dust, water quality control and abatement works;
  - (xx) All highway, road, street, and railway work, including appurtenances such as boulevards, sidewalks, street lighting, and traffic signals;
  - (xxi) All temporary structures and their removal;
  - (xxii) All permanent foundations, retaining walls and structures and their appurtenances;
  - (xxiii) All Systems work;
  - (xxiv) Project Co’s utility coordination and relocation work for Third Parties;
  - (xxv) Project Co’s coordination and construction sequencing of Third Party utility relocation work;

- (xxvi) Bridge work;
- (xxvii) Bridge demolition and removal;
- (xxviii) Operations Maintenance and Service Facility (OMSF) and Yard works;
- (xxix) LRT stops;
- (xxx) Coordination with Region and City governments on street and intersection impacts and closures;
- (xxxi) Construction Compliance/Impact Monitoring Plan in accordance with the Environmental Project Report; and
- (xxxii) Coordination with Region, Cities and Third party Utilities on all intersecting projects.

(d) Cited References

The following list of references is not intended to encompass all cited references of all applicable by-laws, codes, standards and regulations of design, construction, inspection, legal, quality and safety requirements and/or enforcement policies. Project Co shall comply with all relevant references during the Project Agreement. Project Co shall endeavour and satisfy itself it has researched and applied all relevant acts, by-laws, codes, standards, and regulations in the performance and progress of the Work.

Project Co shall in all cases of conflicting act, by-laws, codes, standards, and regulations utilize the more restrictive act, by-law, code, standard and/or regulation. Project Co shall also utilize the latest edition and amendments in all cases.

- (i) Canada Standards Association (CSA)
- (ii) Canadian Environmental Protection Act (CEPA)
- (iii) Canadian Environmental Assessment Act (CEAA)
- (iv) Ontario Occupational Health and Safety Act & Regulations (OHSA)
- (v) Canadian Transportation Agency (CTA)
- (vi) Department of Fisheries and Oceans (DFO)
- (vii) National Building Code of Canada (NBC)
- (viii) Ontario Building Code Act (Building Code or OBC)
- (ix) Ontario Ministry of Transportation (i.e. OTM/MTO Books 1 though 8, and Book 12)
- (x) Ontario Ministry of Transportation (i.e. Ontario Provincial Standards for Roads and Public Works, OPS Volumes 1 through 8)
- (xi) Ontario Ministry of the Environment (i.e. Permit To Take Water Manual)
- (xii) Ontario Ministry of the Environment (i.e. Ontario Water Resources Act)
- (xiii) Ontario Ministry of the Environment (i.e. Stormwater Management)
- (xiv) Ontario Ministry of Natural Resources (MNR)
- (xv) Ontario Ministry of Natural Resources (i.e. Watershed Management and Planning)

- (xvi) Ontario Ministry of the Environment (i.e. Erosion and Sediment Control Guidelines for Federal, Provincial, Region and City's)
- (xvii) Ontario Provincial Standards for Roads and Public Works
- (xviii) Region of Waterloo Building codes, by-laws, codes, enforcements, ordinances, permits, policies, procedures, standards, statutes, regulations, etc.
- (xix) Region of Waterloo Municipal Design Guidelines and Supplemental Specifications for Municipal Services (DGSSMS)
- (xx) Region of Waterloo Environmental Project Report (EPR)
- (xxi) City of Kitchener Building Code and all by-laws, codes, enforcements, ordinances, permits, policies, procedures, standards, statutes, and regulations
- (xxii) City of Kitchener Urban Design Manual (CoKUDM)
- (xxiii) City of Waterloo Building Code and all by-laws, codes, enforcements, ordinances, permits, policies, procedures, standards, statutes, and regulations
- (xxiv) City of Waterloo Urban Design Manual (CoWUDM)
- (xxv) Canadian National Railway Design and Construction Standards (CN)
- (xxvi) Canadian Rail Operating Rules (CROR)
- (xxvii) Grand River Conservation Authority (GRCA)
- (xxviii) Transport Canada Rules and Regulations
- (xxix) Genesee and Wyoming formerly RailAmerica, Inc. (Goderich-Exeter Railway) (GEXR) Railroad Design and Construction Standards
- (xxx) GO Design and Construction Standards
- (xxxi) VIA Rail Design and Construction Standards
- (xxxii) Transportation Association of Canada (TAC) (i.e. Manual of Uniform Traffic Control Devices for Canada (MUTCD))
- (xxxiii) Transportation of Dangerous Goods Act
- (xxxiv) The Waste Diversion Act
- (xxxv) Recycling Council of Ontario
- (xxxvi) Natural Resources Canada, Canada Lands Survey System, Survey Standards; Handbook of Survey Note Keeping (F. Wm. Pifford, Wiley & Sons, Inc.)
- (xxxvii) American Railway Engineering and Maintenance of Way Association (AREMA)
- (xxxviii) Fire Underwriters Survey
- (xxxix) International Organization for Standardization (ISO)
- (xl) American National Standards Institute (ANSI)
- (xli) National Fire Protection Association (NFPA)

- (xlii) Accessibility for Ontarians with Disabilities Act, 2005 Ontario Regulation 191/11 (AODA)
- (xliii) Highway Act 144(31)
- (xliv) Municipal Act, 2001, Ontario Regulation 239/02 Minimum Maintenance Standards for Municipal Highways
- (xlv) The Regional Municipality of Waterloo Construction Activity Vibration Specification, March 2002 and all adopted amendments, revisions, and updates

**18.3 Project Co Communications and Community Relations Representative/Firm**

- (a) Project Co shall provide a Communications and Community Relations Representative, team and Firm upon Financial Close and until the commencement of revenue operations. This individual, team and Firm shall support and coordinate with the Region on all public involvement issues and means of communication, including but not limited to public statements, media matters and events, notifications, Public Meetings, electronic/written public documents and announcements.

Project Co's Communications and Community Relations Representative shall be located within Project Co's Project Facilities during the Work. It is preferred that the balance of Project Co's Communications and Community Relations team and Firm be located within the vicinity and reasonable distance of the Project for support, when necessary and required, as conditions warrant and present themselves.

Project Co shall submit the Communications and Community Relations Representative, team and Firm including resumes and project experience to the Region as a part of its Proposal Submission.

- (i) Project Co's Communications and Community Relations Representative or designate when unavailable shall report to Project Co's Project Manager directly on all matters relating to communications, complaints and coordination with and from the Region and/or Cities, businesses, and/or residents on issues relating to construction. These include but are not limited to traffic; business access, deliveries and disruptions; resident access; debris, dirt, dust, mud, noise, snow and ice, vibration or other unforeseen incidents or crises..
- (ii) Project Co's Communications and Community Relations Representative or designate when unavailable shall coordinate with and support the Region's appointed or designated contact on all matters pertaining to communications, community meetings, presentations, and related plans. This shall include but not be limited to a log of all meetings, their date and times, documented meeting minutes, and any actions required by Project Co and/or Region.
- (iii) Project Co's Communications and Community Relations Representative, team and Firm shall document and log all complaints received and Project Co's actions including planned construction and related disruptions to businesses, residences and other facilities; as well as complaints due to implementation of any other required actions by the Project Co and/or Region. Project Co's Communications and Community Relations Representative, team and Firm shall also implement and operate a complaint hot line (i.e., twenty-four (24) hour a day, 365 days per year) as well as a website capable of receiving complaints.



The Complaint Log shall include the date and time of the complaint, notification of Project Co Project Manager to take action, any follow-up and the immediate actions taken by Project Co as a result of the complaint, including but not limited to phone calls to arrange a meeting, if required, with relevant Region staff, the date and time of such meeting(s) between Project Co's Communications and Community Relations Representative, team and Firm and Region, actions taken to resolve the matter, and if necessary a further follow-up meeting. All complaints shall be acted on and/or resolved immediately but no later than within twenty-four (24) hours of the complaint.

- (iv) Project Co's Communications and Community Relations Representative, team and Firm, as required, shall meet weekly with the Region or more frequently as may be necessary to coordinate all matters pertaining to communication and community relations and the Work. Project Co's Project Manager shall attend these meetings frequently along with other appropriate Project Co staff, as required to address the topic(s) of discussion in each meeting's agenda, and appointed Region contact person including appropriate Region staff, as required for each topic under discussion at these meetings. Meeting agendas shall be prepared in advance unless urgency of a meeting prevents preparation of an agenda. Meeting minutes shall be prepared and documented including all actions to be taken and time frames for their implementation and completion.
- (v) Project Co shall prepare a Project Schedule and Work tied community outreach program and implementation plan that incorporates protocols and procedures to be utilized by Project Co, the Communications and Community Relations Representative, team and Firm, and Region to engage the BIA's, business leaders, community and residents including Project specific Project Co and Project wide community initiatives, Project Co sponsored community events, and Project Co's participation in community events. It shall be consistent with Project Co's Project Schedule, TMP, TCP's and Work plans. Project Co shall submit the program for review and comment by the Region. Project Co shall document and control all edits and revisions, vet with the Region and finalize the program for its use by Project Co, Communications and Community Relations Representative, team and Firm, and the Region. The program shall be approved and ready for use within forty-five (45) calendar days after Financial Close.
- (vi) The Region will organize and operate an independent Project Co Assessment Committee which will include the Region and a representative mix of businesses and residents from each City of the Project' alignment. This Committee will grade Project Co's performance of its work during each month on a monthly basis. These grades shall be based upon Project Co's performance against the Project Schedule, overall completion of the work, responsiveness to complaints and other community-related issues, cleanliness of the Project Site, quality and workmanship, and safety, as well as other issues determined to be important by the Assessment Committee. Project Co will be invited to a pre-arranged meeting following the prior months work at which Project Co will be presented the findings of the group and grade by the Region. The monthly grade is a performance tool that will be used by the Region to determine Project Co's monthly performance.

## 18.4 Access and Protection of Property

### (a) General

Project Co shall utilize all means and methods to minimize the inconvenience to owners, lessors, or sub-lessors, tenants, customers, and vendors of all affected property during the Project's duration and any construction operations. All Project Co agreements shall be in writing and signed by all affected businesses and residences. Project Co shall provide copies to the Region of all agreements prior to the work that will affect the property owner and its tenants or lessors or sub-lessors.

### (i) Protection and Maintenance

Project Co shall design and construct adequate and secure code compliant pedestrian, vehicle, and property protection measures for property of the Region and others for the duration of the Work; for all businesses, churches, colleges, Grand River Hospital, GRT, public schools, private schools, universities, and residences affected. These access and property protection measures shall remain intact, maintained as required and routinely inspected by Project Co until the adjacent and adjoining work is substantially complete. Project Co's designer and MQAQC will determine the duration of the temporary protection and maintenance measures to remain in place, maintenance adequacy and frequency by Project Co, and inspection frequency for completeness and compliance to the Project Agreement and applicable by-laws, codes, design, regulations, standards, and statutes at that time.

Project Co shall prepare a Protection of Adjacent Structures Plan. The individualized plans shall consider all affected and impacted structures, Third Party Utilities, trees and vegetation on private and public property, Third Party plants, railways, facilities, infrastructure, other assets on private property, in advance of all work requiring such a need. The Plan shall be submitted in accordance with Schedule 10 Review Procedures and final version available for review by the Region, each agency having jurisdiction, and/or the Third Parties related to the affected property and assets mentioned above. Project Co shall be responsible for all coordination and implementation of the individualized plans with the Region, respective City, all affected Third Party Utilities, infrastructure owners, and other public and private property owners. Project Co shall maintain, protect, reinforce and be responsible for the safety, stability and integrity of all existing buildings, Third Party Utilities, and structures affected by Project Co's Work. This includes but is not limited to all interior and exterior pre and post-inspections, subsurface investigation, condition surveying, underpinning, shoring, false work, pedestrian and vehicular protections, dewatering, bracing, and warning signage. Damages caused by Project Co's Work shall be repaired to an equal or better condition than that which existed prior to the Work commencing and in accordance with the applicable by-laws, codes, design, regulations, and standards at the time. Where not possible, compensation shall be arranged accordingly subject to the terms and conditions outline in relevant articles, Parts and Schedules of the Project Agreement or Project Co's signed written agreement with the party in question. Project Co shall document the existing condition prior to any Work commencement. Failure will leave Project Co to the subjectivity of the party and Region's decision.

During handling and installation of Work at the Project Site; Project Co shall clean and protect all adjoining and adjacent structures and facilities, adjoining work and work in progress by Project Co, work by others Project Co affects, other Region work Project Co

affects, City work Project Co affects, and Third Party Utility work Project Co affects, on a continuous daily maintenance regimen. Project Co shall apply acceptable protective coverings on installed Work to prevent damage, deterioration, and/or discoloration, of the Work, adjoining work, work in progress and/or structure and/or facility. Final cleaning will occur prior to revenue service and subject to the Region and facility owner's acceptance.

Where necessary, depicted and/or specified, Project Co shall erect and construct secure surfaces, maintain signs, fences and gates, barricades, overhead protection, pedestrian bridges, and provide police for the protection of the public, the work site, adjoining property, and adjoining public places.

(ii) Safety

A. Fire Hydrant and Emergency Response Services

During the progress of the Work, free and safe access to each fire hydrant, fire alarm box, and standpipe shall be maintained and available for use at all times. Where required, hydrants shall be extended by suitable permanent or temporary piping to an accessible point coordinated with the Region and Fire Department of the City of Kitchener and/or Waterloo. The use of low-pressure hydrants shall be confirmed with the respective City prior to its implementation, and Project Co shall obtain all required permits. The use of high-pressure water system hydrants shall be reviewed and approved by the governing authorities. Temporary fire protection equipment shall be inspected, tested and maintained in accordance with NFPA standards and applicable by-laws, codes, standards and regulations.

Project Co shall not cause any interruption to the Region's or the relevant City Fire Department fire alarm service system. The fire flow requirements shall be determined in accordance with the current issue of "Water Supply for Public Fire Protection", Fire Underwriters Survey.

Project Co shall provide and maintain at all times during the Project's duration a means of safe and convenient access for all emergency response services and providers.

Project Co shall obtain approval from the Region, and each respective City and public Third Party Utility to use existing fire hydrants in a temporary condition. Project Co shall coordinate this work and be solely responsible for the required temporary Overland Water Supply System requirements, including fire hydrant salvage, which are explained in greater detail within this Article.

(b) Access – Business and Resident Ingress and Egress

(i) Pedestrian

Project Co shall provide for the convenient and safe access of pedestrians to all properties from roads, streets, driveways, highways, sidewalks, multi-use trails, and walkways along the Project alignment, for the duration of the Work.

Project Co shall provide, maintain on a daily basis for the duration of the Work, and clearly delineate with temporary signage, all temporary surface access means and routes during the Work, including but not limited to all businesses and their customers and

vendors, residences and their service needs, and emergency response services. Project Co shall plan, phase, sequence and stage the restoration work to all businesses and residences in a manner to provide access to the affected property at all times, including but not limited to utility services and emergency response services. Temporary access shall not be less than required by Federal, Provincial, Region, City and agency having jurisdiction by-law, code, law, ordinance, permit zoning, or other relevant regulation.

Restoration of all temporary work to its permanent and final position shall comply with the Project Agreement and the more restrictive by-laws, code and regulations in force at the end of the Work.

(ii) Vehicular

Project Co shall provide for the convenient and safe access of vehicles to all required properties from roads, streets, driveways, highways, and other vehicular access points along the Project alignment, and maintain access at all times.

Project Co shall provide, maintain on a daily basis for the duration of the Work, and clearly delineate with temporary signage, all temporary access means and routes during the Work, including but not limited to vehicular access to all businesses by their owners, customers and vendors; residences and their access needs; and access by emergency response services into and through the Project alignment. Project Co shall plan, phase, sequence, and stage the restoration work to all businesses and residences in a manner to provide access to the affected property at all times, including but not limited to utility services and emergency response services. All temporary access measures shall be proportional to the vehicular traffic use, providing safe and convenient access by all legally allowed users. However, temporary access shall not be less than required by Federal, Provincial, Region, City and agency having jurisdiction by-law, code, law, ordinance, permit, permitted zoning, or other relevant regulation.

Restoration of all temporary work to its permanent and final position shall comply with the Project Agreement and the more restrictive by-laws, code and regulations in force at the end of the Work.

(c) Off and On Street Parking and Parking Permits

Project Co shall provide suitable, safe, convenient, free and accessible short term parking during construction for all affected businesses and residences as a result of the Project Co's planning, phasing, sequencing and staging of the Work. No business or residence shall be without its current parking demand needs for longer than three (3) consecutive calendar days, or as mutually agreed to in writing prior to the commencement of the work by Project Co with the property owner and its tenants and the Region. Project Co shall notify the Region and the respective City Traffic and Parking Services a minimum of five (5) working days for each road closure and/or three (3) working days advanced notice for any partial road closures.

Lost parking spaces as a result of Project Co's approved final design are not considered a part of this requirement.

Project Co and all employees on this Project shall be responsible for obeying all parking regulations.

Project Co shall be responsible for furnishing and installing, where required, all delineators, barrels, and other temporary traffic protection as appropriate, without cost to the Region and respective City, to provide adequate protection for motorists and pedestrians within the Projects adjacent and immediate construction limits as directed by the Region.

When parking is to be prohibited in order to perform the work, temporary “Emergency No Parking” signs shall be installed by Project Co a minimum of twenty-four (24) hours prior to the commencement of the work. However, these temporary signs shall be placed well in advance of normal business hours with the prior approval of the Region and City and advance notification and consent of all business owners and residents affected for their planning. All temporary signs shall be clear, legible and readable from a reasonable distance while driving to all parties that parking is not available. These temporary signs are not considered a part of the approved individualized TCP signs, signage and supports to be procured and fabricated by the Region sign shop. All temporary signs shall be removed immediately and all damages caused by these temporary measures shall be restored to an equal or better condition than that which existed prior to the Work commencing and in accordance with the applicable by-laws, codes, design, regulations, and standards at the time. Project Co shall document the existing condition prior to any Work commencement. Failure will leave Project Co to the subjectivity of the Region, agency having jurisdiction and property owner decision.

(d) Continuation of Existing Utility Service

Project Co shall at all times safeguard, maintain, protect and restore, as applicable, all existing public and private Third Party Utilities including, their connections, wires, cables, ducts, manholes, pipe, posts and poles, sanitary, signals, storm and fire alarm boxes.

Project Co shall maintain at all times during the Work the safe continuous operation and supply of all utility services to all businesses and residences. No disruption of service will be permitted with the exception of emergencies and coordinated temporary disconnects with the affected party.

Project Co shall notify and coordinate with the Region, respective City and public Third Party Utility(ies) on all illegal business and residential sanitary and storm sewer taps discovered during the progress of the Work. Project Co shall allow sufficient time for the Region, respective City and relevant public Third Party Utility to respond and review the situation. If deemed acceptable by the Region, respective City and relevant public Third Party Utility, Project Co shall reconnect the “grandfathered” connection.

Project Co and the Region will coordinate the outcome of all connections deemed unacceptable with the respective property owner promptly. For all discovered illegal sanitary and storm sewer taps deemed unacceptable, Project Co shall be compensated on a time and material basis.

(e) Garbage/Trash Collection and Removal, Recycle, Yard Waste Pickup and Transportation

Project Co shall be responsible for the pickup, when access is denied to these areas due to Project Co’s work activities or deemed unacceptable by the Region’s Waste Management Division, of all garbage/trash, garbage bags, garbage containers, recycling boxes and yard waste items left at the curb side from abutting residential and commercial properties within the Projects Limits of adjacent construction and for the delivery of all curb side garbage to the limits of construction at a location approved by the Region. Empty garbage containers and recycling boxes shall be returned to the respective property owners on the same day by Project Co. Project Co shall coordinate and seek approval with the respective property owner the ability to mark their property

address on their respective containers/receptacles in order to ensure the return to the proper owner. Project Co shall provide and maintain all regularly scheduled garbage and recycling pickups regardless of whether Project Co is working on that day.

For this issue, Project Co shall contact the Region Representative to obtain the appropriate Region and City contacts.

(f) Temporary Works and Structures

Project Co shall design, furnish and construct, prepare, maintain at regular intervals not exceeding a week or approved for a longer duration during the Design Review and remove when required, all temporary works and/or structures such as barricades, bracing, false work, fencing, staging, scaffolding, shoring, and like requirements for any condition that results from Project Co's work plans, phasing, sequence and staging to all affected properties and the performance of the Work whether or not of the type enumerated and stated herein. All temporary work and/or structures shall be engineered and designed by Project Co and of adequate strength for the purpose for which they are temporarily constructed. They shall be engineered and designed in a manner considering the final permanent work.

**18.5 Construction Survey**

(a) General

Project Co shall perform all necessary design and construction surveying required to construct all elements of the Project. Project Co shall perform a closed loop traverse of the alignment as a part of its design data collection and establishment for the Design and Construction Works. This shall include but not limited to all pre-construction survey controls, stake-out, layout, and elevations for the LRT, roadway structures, bridges, railways, forms, pile layouts, and appurtenances as shown and required, consistent with the current practices of the Federal, Provincial, Region, and Cities. The design surveying shall commence immediately following Financial Close or upon notification of the successful Proponent by the Region at Project Co's risk. The construction survey control and stake-out shall proceed immediately following the acceptance of Phase 1, unless otherwise approved by the Region in writing during Phase 1 for each Work Package/Design Unit. Project Co's Manager of Quality Assurance and Quality Control (MQAQC) shall keep the Region fully informed regarding the progress of the survey control and stake-out during each Phase and each Work Package/Design Unit.

Project Co shall, prior to the start of any construction, establish a system of vertical and horizontal control points and bench marks. These control points shall tie the points to benchmarks and indices sufficiently remote to not be disturbed by Project Co's operations. Such points shall be checked weekly or more often, as required, by a qualified and certified person under the direction of an Ontario Licensed Land Surveyor (O.L.S.) licensed to practice in the Province of Ontario and Project Co's MQAQC. Project Co shall not rely on the sole use of aerial mapping for any Work.

(b) Survey Control and Stake-Out

(i) The exact position of all Work shall be established from control points and bench marks. Any error, apparent discrepancy, or absence in/of data shown or required for accurately accomplishing the survey control stake-out shall be referred to the designer for

interpretation or furnishing when such is observed or required. MQAQC shall be kept apprised of all instances, occurrences and the outcome.

- (ii) Project Co shall place two offset stakes or references at each centerline stationing and at intermediate locations, as required. From computations and measurements made by Project Co, these stakes shall be clearly and legibly marked with the correct centerline stationing numbers, offset and cut or fill, to permit the establishment of the exact centerline location and elevation during construction. If markings become faded or blurred for any reason, the markings shall be restored by Project Co immediately. All control points shall be properly guarded and flagged for easy identification at all times. All bench marks and corresponding control points shall be visible at all times and yet to be placed by Project Co to prevent their disruption and/or movement by the Work.
- (iii) Drainage structures shall be staked out by Project Co at the locations and elevations shown on the approved and Released for Construction (RFC) Plans. Project Co, the designer, the Region and respective City and Utility shall agree in advance on the establishment of how to locate these on all design drawings, survey, observation, testing, witnessing, acceptance and As-Built compliance.
- (iv) Project Co shall also accurately establish the centerline of bearings for all structural abutments and piers, by setting special hubs or reference points, located and protected to remain undisturbed until no longer needed. Project Co shall accurately mark the location of anchor bolts to be installed, establish the elevation of bearing surfaces, and check bearing plates to confirm installation at their exact elevation. Before the erection of structural steel and/or like supporting materials is started, Project Co shall verify by accurate field measurements both the vertical and horizontal locations of all bearings.
- (v) Project Co shall accurately locate the centerline and elevations of all anchor bolts, connections, bearing surfaces, trackwork, and special trackwork such as turnouts and gantlet track, including but not limited to all overhead catenary supports (OCS), traction power substations (TPSS), track signal equipment, pedestrian fencing and/or guardrail, LRT stop shelters, traffic signal poles, street lighting poles and equipment of any kind such as Ticket Vending Machines (TVMs). Project Co shall also locate the centerline and elevations of related Operation and Maintenance Facility and Yard work, including for any LRV maintenance needs such as an LRV Car Wash, overhead cranes, truck turntables, and stingers among other equipment.
- (vi) Project Co shall pay particular attention to the surveying and accurate locations in all urban areas, including but not limited to transitions between ballasted and embedded track, at-grade crossings, crossing gates and appurtenances, intersections, curbs, barriers, storm inlets and drainage structures, public and private Third Party utility access. Third Party utility access and conduits shall also include but not be limited to manholes and their location for future access and maintenance; pull boxes and their location for future access and maintenance; valve boxes of any type; utility lateral crossings of any type; public and private Third Party utility plant connections, terminations, and their customer connections; traffic signals and their appurtenances; street lighting; AODA ramps; signs and signage; fencing and/or guard rails; cross walks; and utility meters.
- (vii) Where possible, the Region prefers that all relocated utility work such as all manholes lids, valve boxes, pull box lids, are not placed in the wheel path for vehicular traffic and

cyclist. The Region prefers when the Project Co utilizes concrete pavement that diagonal reinforcing steel with corrosion protection be placed to minimize cracking as well as entrant corners within all concrete pavements. Additionally, transfer joint bars shall be addressed in the design of all concrete pavement joints.

- (viii) All required Rights-of-Way and easement limits shall be established, staked and referenced by Project Co concurrent with the construction stake-out survey. Rights-of-Way and easement limits shall be staked by, or under the direction of, an Ontario Land Surveyor (O.L.S.) and MQAQC. Project Co's MQAQC shall provide proof and demonstrate to the Region such work is being performed by and/or supervised by an O.L.S.
- (ix) Project Co shall accurately reference permanent survey markers to the baseline by coordinates determined by closed traverse. The measurements shall be performed by and under the direction of an O.L.S. and MQAQC. Long and moderate distances shall be measured electronically. Short distances shall be measured with steel chain, and the measurement shall be corrected for sag, tension, temperature and differences in elevation, as necessary, to attain the required accuracy. Distances shall be considered short if the fixed error inherent in the electronic distance measurement equipment will be greater than one ten-thousandth part of the distance to be measured.
- (x) All measurements shall be neatly recorded on a sketch showing the relative positions of the baseline points, the permanent survey markers, and centerline stationing, physical ties to the markers, and the north arrow. When field notes are kept, they shall be generally in accordance with The Handbook of Survey Note Keeping. Original field notes shall be submitted to the MQAQC, and made available for review by the Region. Project Co shall also provide these in an electronic format acceptable to the Region.
- (xi) Project Co's O.L.S. shall certify and seal the measurements were made to the required degree of accuracy. Project Co shall also provide these in an electronic format acceptable to the Region.
- (xii) The Region reserves the right at any time to check all or any portion of the survey and stake-out work or notes made by Project Co. Any necessary correction to the work shall be made immediately by Project Co. Such checking shall not relieve Project Co of any responsibilities for the accuracy or completeness of the survey and stake-out work.
- (xiii) During the progress of the Work, Project Co shall furnish all of the surveying and stake-out incidental to the proper location by line and grade for each phase, activity and sequence, and stage of the Work. For operations requiring extreme accuracy, Project Co shall re-stake with pins or other acceptable hubs located directly adjacent to the Work at a spacing directed by Project Co's MQAQC.
- (xiv) Any existing stakes, iron pins, survey monuments, or other markers defining property lines planned to be disturbed during construction shall be properly tied into fixed reference points before any property is disturbed. They shall be removed, and accurately reset in their proper position upon completion of the construction work.

A. Maintenance



Project Co shall be responsible for the accuracy of the survey control and stake-out work and shall maintain all reference bench marks, control points, points, stakes, or other markers, throughout the life of the Project Agreement. Faded, damaged or destroyed points, benchmarks, control points, or stakes, or any reference points made inaccessible by the progress of the Work shall be replaced or transferred by Project Co. All control points shall be referenced by ties to acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to Project Co's MQAQC immediately. All stake-out survey work shall be referenced to the centerlines shown on the Released for Construction (RFC) Plans. All computations necessary to establish the exact position of the Work from control points shall be made and preserved by Project Co. Computations, survey notes and other records shall be submitted to the designer and made available to the Region, upon request, and become the property of the Region at the completion of the Project.

(c) Final Survey Control

Prior to completion of the Project Agreement, Project Co shall re-establish, as required, and re-tie all control points and bench marks as permanently as possible. Final survey control shall be suitable for confirming track alignment control points. Project Co shall also provide these in an electronic format acceptable to the Region.

**18.6 Pre- and Post-Condition Surveys**

(a) General

Project Co shall determine from its assessment of the Project Site, EPR, Work and the activities to be performed by Project Co which properties should be investigated, surveyed and monitored. Project Co takes full responsibility for all properties it fails to investigate along the alignment including all damages including but not limited to private and public Third Party Utilities.

In order to detect any movement of buildings or structures affected by Project Co's Work, Project Co, prior to the start of any construction, shall establish a system of vertical and horizontal control points on or about such buildings and/or structures and property. These control points shall tie the points to benchmarks and indices sufficiently remote to not be disturbed by Project Co's operations. Such points shall be checked weekly or more often, as required, by a qualified and certified person under the direction of a Professional Engineer Licensed in the Province of Ontario and Project Co's MQAQC.

(i) Reports

Project Co from its assessment shall prepare pre- and post-condition reports for all affected property along the alignment that have the potential for damage as a result of Project Co's Work such as buildings, railroad crossings, culverts, railroads, roadways, streets, highways, structures, sidewalks, walkways, multi-use trails, boulevards, street lighting, traffic signals, and utilities. All inspection and reporting shall be prepared by a certified professional experienced in reports of this nature and in a manner to describe the property and its condition at each stage to its fullest extent. The reports shall be coordinated and include all monitoring and movement detection data collected, photographs or other media, surveys, and other appropriate supporting data.

Right-to-Enter Agreements with the affected property owner shall be included in all Reports.

(ii) Photographs and Videos

Project Co shall use photographs, digital video, and other means to accurately document the existing conditions. These shall be included in all reports. Any deterioration or damage attributed in part to Project Co's activity shall be repaired by Project Co. Damages caused by Project Co's Work shall be repaired to an equal or better condition than that which existed prior to the Work commencing and in accordance with the applicable by-laws, codes, design, regulations, and standards at the time. This includes but is not limited to Region, agency having jurisdiction, authority responsible for the affected element and property owner including private and public Third Party Utilities. Project Co shall document the existing condition prior to any Work commencement. Failure will leave Project Co to the subjectivity of the party and Region's decision.

(b) Structure Monitoring and Movement Detection

(i) From Project Co's pre-and post-condition survey of the interior and exterior condition of any affected property, Project Co shall establish and install monitoring and movement detection devices. Project Co shall collect data prior to any Work commencing, during the Work, post construction Work and during pre-revenue testing and training to satisfy itself no additional damage potential exists from the Work. Project Co shall be responsible for all claims for damages and for repairing or replacing damaged facilities caused by Project Co's work. Project Co shall refer to the EPR for heritage and historically significant structures. In addition, Project Co shall refer to Exhibit 18.6-1 contained herein for potential additional heritage and historically significant structures not identified in the EPR. These shall be considered in addition to those identified in the EPR. Project Co is directed and shall comply during construction with The Regional Municipality of Waterloo Construction Activity Vibration Specification dated March 2002 and all amendments, revisions, and updates adopted by the Region and Cities.

(ii) Project Co shall, prior to commencement of the Work, perform a detailed field inspection of all infrastructure including but not limited to existing buildings, railroads, roadways, streets, highways, sidewalks, walkways, multi-use trails, boulevards, street lighting, traffic signals, and utilities. All pre- and post-condition surveys shall be conducted by Project Co and the agency responsible for the roadway structure, railroad, all public and private Third Party Utilities, property owner and business. These are considered a part of Project Co's pre- and post-condition survey reporting obligations and assessment. Any monitoring determined to be required by Project Co shall also be included.

Project Co shall perform an interim CCTV of all new and existing utility related infrastructures, including but not limited to all sanitary, storm, and under drains for road and railroads, as the Work is completed and prior to all hard surfaces being placed in the permanent and final position. This includes all utility crossings of all railroad interfaces.

Final CCTV inspection of all utilities shall occur at the completion of the Project. However, such final inspection shall occur no sooner than pre-revenue training and testing operations to satisfy the Region that all Work has been completed. All damages discovered shall be repaired by Project Co to the satisfaction of the Region, respective

City and public and private Third Party Utility, including the potential for removal and replacement of all work affected at no cost to the Region.

(iii) EPR Historical Structures and Additional Address Locations

Project Co shall, in addition to the identified EPR locations, include the following potential heritage and historically significant structure locations noted below as being sensitive receptors for consideration with respect to their proximity to adjacent work for evaluation, monitoring, corrective actions, and mitigations as necessary.

A. Exhibit 18.6-1 Potential Additional Heritage and Historically Significant Structures

**EXHIBIT 18.6-1 Potential Additional Heritage and Historically Significant Structure Locations**

No.	Street Address	City	Notes
1	43 Benton St	Kitchener	Ontario College Of Naturopathic Medicine (Pentecostal Church; K-W Art Gallery)
2	54 Benton St	Kitchener	St. Matthew's Lutheran Church
3	10 Church St	Kitchener	Victoria Park Heritage Conservation District
4	14 Church St	Kitchener	Victoria Park Heritage Conservation District
5	120 Duke St W	Kitchener	St. Jerome's High School
6	404 King St W	Kitchener	Kaufman
7	410 King St W	Kitchener	Kaufman Footwear (Rubber Company), Berlin Felt Boot Co.
8	787 King St W	Kitchener	K-W Collegiate And Vocational School
9	70 King St E	Kitchener	Toronto Dominion Bank
10	3734 King St E	Kitchener	
11	137-147 King St E	Kitchener	
12	5 Maurice St	Kitchener	Jacob Y. Shantz Residence

**EXHIBIT 18.6-1 Potential Additional Heritage and Historically Significant Structure Locations**

No.	Street Address	City	Notes
13	95-97 Queen Street S	Kitchener	Barrels Restaurant
14	103 Queen Street S	Kitchener	Victoria Park Heritage Conservation District
15	91 Queen Street S	Kitchener	Victoria Park Heritage Conservation District
16	1-3 Charles Street W/ 84-92 Queen St S	Kitchener	
17	301 Charles Street East	Kitchener	Cameron Heights Collegiate Institute
18	22-26 Charles Street West	Kitchener	Charlie's Restaurant (Canada Furniture Mfg., Fishman Spring Co.)
19	2-22 Duke Street East	Kitchener	
20	15-29 Duke Street East	Kitchener	Federal Building
21	10 Duke Street West	Kitchener	Preisehammer Investments Inc.
22	56 Duke Street West	Kitchener	Queen Mary Church
23	111 Duke St W/198-220 King St W	Kitchener	
24	156 Duke Street West	Kitchener	Duke Street Manor Apartments (Boehmer Box Co.)
25	27 Gaukel Street	Kitchener	Schreiter's Furniture
26	53-61 King St E	Kitchener	Woolworth
27	800 King Street East	Kitchener	First Mennonite Church
28	1027 King Street East	Kitchener	(Onward Manufacturing)
29	617-621 King Street West	Kitchener	Ratz-Bechtel Funeral Home
30	709 King Street West	Kitchener	King Edward School

**EXHIBIT 18.6-1 Potential Additional Heritage and Historically Significant Structure Locations**

No.	Street Address	City	Notes
31	33 Ontario St N	Kitchener	Parking Garage
32	48 Ontario St N	Kitchener	
33	16-20 Queen St N	Kitchener	Beneficial Life Canada Inc. / Dr. B.G. Peta – Optometrist
34	43-49 Queen St N	Kitchener	Courtyard Of St. Peter's Lutheran Church
35	44-54 Queen St S	Kitchener	
36	45 Queen St S	Kitchener	Cafe Mozart
37	58 Queen St S	Kitchener	K-W Working Centre
38	66 Queen St S	Kitchener	Full Circle Foods
39	33 Queen Street South	Kitchener	
40	43 Queen Street South	Kitchener	
41	53-55 Queen Street South	Kitchener	
42	19-23 Water Street North	Kitchener	Church Of St. John The Evangelist
43	12 Wellington Street North	Kitchener	Schmaltz House
44	73 Young St	Kitchener	St. Mary's Church Rectory
45	156 King Street South	Waterloo	The Kuntz-Eckert House
46	167 King Street South	Waterloo	The Kuntz Heasley House
47	172 King Street South	Waterloo	The Kumpf House
48	227 King Street South	Waterloo	The SunLife Building
49	25 Regina Street South	Waterloo	The Button Factory Building
50	57 Erb Street West	Waterloo	Seagram Bonded Warehouse; 1878

**EXHIBIT 18.6-1 Potential Additional Heritage and Historically Significant Structure Locations**

No.	Street Address	City	Notes
51	83 Erb Street West	Waterloo	Seagram Buildings
52	35 King Street North	Waterloo	Post Office
53	59 King Street North	Waterloo	Huether Hotel
54	4-6 King Street South	Waterloo	Snyder-Hahn Building, 1857
55	150 King Street South	Waterloo	
56	203 King Street South	Waterloo	
57	205 King St S	Waterloo	
58	217 King Street South	Waterloo	Home Of George Wegenast, Former Mgr Of The Mutual Life Assurance Co, Now Sun Life
59	168 King Street South	Waterloo	Former Bauer Apartments
60	179-181 King St S	Waterloo	Brick Brewing Co Limited
61	186 King Street South	Waterloo	
62	100-102 King Street South	Waterloo	
63	208 King Street South	Waterloo	
64	38-40 King Street South	Waterloo	
65	44- 48 King Street South	Waterloo	
66	16 King St S	Waterloo	
67	200 University Ave W	Waterloo	Grad House, South Campus, University Of Waterloo
68	Waterloo Park Drive	Waterloo	School House In Waterloo Park
69	8 William Street East	Waterloo	

**EXHIBIT 18.6-1 Potential Additional Heritage and Historically Significant Structure Locations**

No.	Street Address	City	Notes
70	19 Benton Street	Kitchener	Maypole
71	113-151 Charles Street West / 170-188 Joseph Street / 3-44 Francis Street South	Kitchener	Lang Tannery
72	32 Duke Street East / 58-60 Frederick Street	Kitchener	
73	30-32 Duke Street / 141 Ontario Street North	Kitchener	RBC Building
74	33 Eby Street South	Kitchener	
75	42 Francis Street North	Kitchener	
76	67 King Street East	Kitchener	Benton Building
77	3570 King Street East	Kitchener	Freeport Hospital
78	727-729 King Street West	Kitchener	
79	737-739 King Street West	Kitchener	
80		Kitchener	Freeport Viaduct
81	280 Carwood Avenue / 625 Rockway Drive	Kitchener	Rockway Golf Course
82	24 Cameron Street South	Kitchener	
83	20 Water Street North	Kitchener	Bell Canada Building

(i) Maintenance

Project Co shall routinely inspect, maintain, re-establish and repair all monitoring and detection points until the completion of the adjoining work or until such time Project Co considers further damage resulting from Project Co's adjoining work to be minimal. However, Project Co shall not cease these activities until completion of pre-revenue testing and training phases have ended. Project Co shall demonstrate to the Region

monitoring can be stopped prior to pre-revenue testing and training on a case-by-case basis. However, this does not relieve Project Co from its obligations and responsibility for damages.

## 18.7 Project Co Facilities

### (a) General

Project Co shall procure, install, operate, maintain, and remove all facilities, including but not limited to, Project offices, field operation offices, work trailers, material storage and equipment yards, lay downs, ingress and egress locations, internet and cable service, offsite facilities and yards, electrical power, telephone, water, fire protection, janitorial services, security, waste/recycle removal, collection and disposal, and sanitary service needed for construction, installation and testing of the Project. Project Co shall restore and return all “Lands” whether Region, public or private to like new conditions to the satisfaction of the Region, public or private owner at the completion of all Work or sooner but no later than the completion of pre-revenue testing and training and the revenue operations. Project Co shall document the existing condition prior to any Work commencement. Failure will leave Project Co to the subjectivity of the party and Region’s decision.

### (i) Facilities

Project Co is responsible for procuring, mobilizing, providing, delivering, establishing, securing, removing and demobilizing all Project offices, field operation offices, including necessary office equipment and amenities. Project Co’s offices shall be ample, AODA accessible, convenient, comfortable, environmental controlled, functional, safe, well lit, and located within the Project alignment corridor to support the local economy. Ample conference rooms of various sizes shall be provided to handle the tasks and needs to be performed by Project Co and its subcontractors. Project Co shall include in its facilities a well lit environmentally controlled fully furnished twelve feet (12’-0”) wide by twenty feet (20’-0”) long minimum office or similar for use by the Region Representative or other Region designate staff or advisors, when needed, including but not limited to one (1) desk with desk lamp and swivel chair, conference table for six (6) with six (6) swivel chairs, shelving, two (2) five (5) drawer fire proof legal lockable file cabinets, four foot (4’-0”) wide by eight foot (8’-0”) long wall mounted dry erase marker board, access to Project Co’s full size drawing racks and prints, RFIs, and other design data for its use, Wi-Fi internet connections for a portable lap top computer provided by the Region for the Region or designates use, hard line connected phone for the desk and conference table for local and long distance calls and conferencing, Wi-Fi connection to Project Co’s Project Facility color and black and white printers, and free of charge parking for three vehicles.

Project Co shall prepare and submit all shop and working drawings with details and layout of temporary installations for acceptance by the Region, agency having jurisdiction, and public and private Third Party Utility prior to installing any temporary facility. Temporary facilities shall meet all applicable by-laws, codes, laws, rules, regulations and statutes, etc. All shop and working drawings shall be signed and sealed by the appropriate P. Eng. or Architect.



(ii) Emergency Response Services

Project Co shall provide for the convenient and safe access of all emergency response service providers to all portions of the Project alignment at all times including all Project Co Facilities.

(iii) Maintenance

Project Co shall arrange, procure and maintain on a continuous daily basis the required cleaning services of its Project offices, ancillary facilities, and work areas. These shall be available within three (3) calendar days of Project Co's Project Office establishment.

Project Co shall care for, repair, maintain, and upgrade as conditions warrant all Project Co Facilities, including but not limited to Project offices, field operation offices, work trailers, material storage and equipment yards, lay downs, "Lands", ingress and egress locations, offsite facilities and yards, electrical power, internet and cable, telephone, water, fire protection, janitorial services, security, waste/recycle removal, collection and disposal, and sanitary service needed for construction, installation and testing, and temporary works of the Project.

Project Co shall be responsible for removing and disposing of all debris, dirt, mud, trash, snow and ice removal including de-icing chemicals and sanding operations, when applicable, during the Work on a daily basis including weekends and Holidays until the maintenance period of the Project Agreement begins at all Project Co Facilities.

Project Co shall maintain its required utility service and security service connections for its Work along the Project alignment at all times.

(b) Access – Ingress and Egress

(i) Staging

Project Co shall provide the Region, Project Co's on and offsite and its subcontractors lay down locations and their ingress and egress points, Project Co and subcontractor on and offsite staging area locations and their ingress and egress points, Project Co and subcontractor Project on and offsite office location(s) and Project Site trailer locations including Project Site, employee, Region and visitor parking, services, security means and measures for offices, material and equipment.

Project Co shall plan the Work utilizing the nearest access and egress from the nearest designated Region and City truck routes for all access, deliveries, demobilization, excavation, hauling, mobilization, recycling, equipment and materials removals, staging, and waste removal. Project Co shall minimize the disruption to surrounding residential streets and refrain from their use. Project Co shall obtain approval from the Region and City prior to the use of any residential street for the work. Project Co is responsible for the restoration of all damage caused by its operations and work to all residential street usage.

(ii) Region "Lands"

Project Co is advised of Region "Lands", which may be of use to Project Co for equipment delivery, such as Traction Power Substations, lay down, storage and like matters. Project Co shall arrange, view, and secure all obligations and use with the

Region on all Region “Lands” prior to their use by Project Co. Project Co shall refer to the Project Agreement for the type, size, and location of these “Lands”.

(c) Utility Services

Project Co shall procure, provide, install, maintain, permit, secure and remove at the completion of the Work all utility services and needs for the duration of the Project.

Project Co shall prepare, P. Eng. seal as required, submit all shop and working drawings with details and layout of temporary installations for acceptance by the Region, agency having jurisdiction and public and private Third Party Utility prior to installing any temporary facility. Temporary facilities shall meet all applicable by-laws, codes, laws, rules, regulations and statutes.

(i) Temporary electrical service shall include:

Providing lighting and power per by-law, code, etc. for all Project offices including field operation offices, storage facilities, and other construction facilities and areas;

Providing power centers for electrically operated and controlled construction facilities, including tools; equipment; interior construction lighting; and heating, cooling, and ventilation equipment.

Provide security lighting including but not limited to secured areas within Project limits, at all Project offices, trailer, egress and ingress points, storage facilities, lay down areas, offsite storage and excavated areas.

Providing battery-operated or equivalent emergency lighting facilities at construction work areas where light failures will cause employees to be subjected to hazardous conditions. These shall be tested when placed in service for each use and weekly as the operations extend beyond three (3) calendar days.

Providing for temporary electrical service permits, fees, and deposits required by the governing authorities; connection charges; and temporary easements, including installation, maintenance, and removal of equipment.

(ii) Temporary telephone, facsimile, and cell phone service shall include furnishing, installing, and maintaining all telephone service needed to effectively run the construction, installation, and testing operations.

Temporary Project Site communications that enables Project Co a uniform clear onsite frequency during construction including the means of communicating with CN required flaggers, watchmen lookout staff, etc. At the completion of the Project this system shall be disabled and removed.

(iii) Temporary high speed internet service shall include furnishing, installing, and maintaining all internet service needed to effectively run the construction, installation, and testing operations.

(iv) Temporary water service shall include furnishing, installing, and maintaining a temporary water system throughout the Projects duration for drinking, construction, sanitation, first aid, fire protection, and cleaning.

(v) Temporary fire protection shall include furnishing, installing, and maintaining temporary portable fire protection equipment throughout the Project alignment and Project duration. This shall include temporary emergency response service needs, as applicable along the Project alignment, and during the disruption of any fire hydrant during utility work.

Project Co shall obtain approval from the Region, City and agency having jurisdiction through the submission of its design and work plan submittals prior to start of the work. Project Co shall include the clear identification of all fire hydrants during construction by means of acceptable markers, flags, etc. acceptable to the Region, City and agency having jurisdiction. These markers shall be maintained throughout the duration of the Project by Project Co including inclement weather.

- (vi) Temporary sanitary service shall include:

Project Co shall furnish, install, and maintain temporary sanitary facilities and services at the Project offices, field operation facilities, etc. including providing for the separation of single-user toilets for privacy between the sexes during the Work. Ample accommodations shall be provided for the all Project Co personnel and visitors.

Project Co shall provide Porto-Johns or similar along the Project alignment, as required, in quantities for the level of adjacent work activity, and cleaned and/or replaced weekly, at a minimum, or more frequently as required by by-law, code, laws and health regulations which every is more stringent.

- (vii) Temporary heating, ventilation, and air conditioning shall include furnishing, installing, and maintaining a temporary HVAC system to allow the Work to be performed within Federal, Provincial, Region and Municipal safety and health code requirements, and to prevent damage to materials stored by Project Co. This includes all Project offices, field operation offices, applicable trailers, storage areas, offsite storage and yards.

- (d) Waste Control and Removal

Project Co shall arrange, procure, provide and secure for the proper collection, control, removal, and disposal of waste, residual waste, recycled material for the duration of the Project Agreement. Project Co shall comply with the Transportation of Dangerous Goods Act and Waste Diversion Act during the disposal of any material.

- (e) Parking

Project Co shall provide ample, convenient, maintained, safe, secure, well lit, even hard surfaced off street free parking for its Project Site personnel, Region, and visitors to all Project Co Project offices for the duration of the Project.

- (f) Security

Project Co shall furnish, procure, provide, install, maintain and remove, as required, a security system for its Project offices including but not limited to secured areas along the Project alignment, at all Project offices, trailers, egress and ingress points, storage facilities, lay down areas, offsite storage and equipment yards. Lighting shall be adequate at all locations for the intended purpose. Project Co shall provide security services along the Project alignment, as required, due to theft potential of long lead material and equipment purchases.

- (g) Safety

Project Co shall provide at all of its facilities sufficient PPE for visitors at all times including a mandatory sign in policy for all visitors.

## 18.8 Construction Sequence Considerations

### (a) General

Project Co shall provide a fully detailed cost and resource loaded Primavera P6 Project Schedule in accordance with Schedule 15-2 Design and Construction Performance Output Specifications or equivalent cost and resource loaded CPM Project Schedule of all of the Work to be performed, in a logical continuous seamless sequence, and in accordance with Project Agreement and its Schedules.

The Project Schedule shall consider all required construction, the maintenance and protection of vehicular, cyclist, and pedestrian traffic on the various existing streets and existing parking facilities within and adjacent to the Project at all times during construction, weather delays, multiple shifts, and weekend work, statutory holidays, by-law restrictions, etc.

Project Co shall provide for all Work and work activities a detailed sequence of construction, including but not limited to planning, phasing, sequencing, staging, and work plans with narratives, Project Schedule, fragnets, look ahead's and recoveries.

Construction-related plant and support operations shall be determined, taking into account work location and demands of the Project Schedule, with provision for ample margin for emergency or overload.

The locations of stationary equipment, mobile equipment, staging, material lay-down, and parking and office facilities shall be determined and documented through the work plans and tied to the Project Schedule work activities, prepared and provided by Project Co to the designer and made available to the Region for its use.

Project Co shall coordinate and schedule the Work and work activities to avoid impacts including but not limited to the Region of Waterloo, City of Waterloo, Conestoga Mall, University of Waterloo, Wilfred Laurier University, Fairview Park Mall, Grand River Hospital, City of Kitchener, BIA's of each City, business operations, emergency response services, Grand River Transit bus operations, CN Railway, Genesee and Wyoming formerly GEXR Railway, GO Rail, VIA Rail, Waterloo Central Railroad, Intercity bus operations, public and private Third Party Utilities, Waterloo Spur rail operations, Kitchener Market, Kitchener Waterloo Collegiate and Vocational School, King Edward Public School, Cameron Heights Collegiate Institute, and churches.

Project Co shall be responsible for obtaining variances and/or relief to all by-laws and/or restrictions such as hours of operation, noise, vibration, etc. No Work shall violate the current by-laws and/or restrictions and the more restrictive shall apply in all cases. Any request by Project Co for a noise by-law exemption shall be submitted in writing along with a narrative report with supporting documentation to the Region for review and comment prior to any subsequent forwarding to the respective City and agency having jurisdiction within the City of Kitchener and City of Waterloo including City Council's for each City. Project Co shall make themselves aware of the requirements and timelines necessary to prepare and obtain approval for a noise by-law exemption. If insufficient notification is given by the Project Co to the Region and respective City for any exemption, work may not proceed outside of allowable work hours. For example, City of Kitchener's noise by-law permits work between the hours of 7:00 am and 7:00 pm Monday to Sunday. Project Co's Project Schedule shall account for these regardless of whether granted or not.

Project Co shall coordinate the Work and Project Schedule in a manner acceptable to the Region and City planned intersecting projects that will occur during construction and pre-revenue service and training. The intersecting projects shall be shown on Project Co's Project Schedule with

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specific ties to predecessor activities and successor activities that shall be met by Project Co to promote the safety and completion of the intersecting projects. Project Co shall construct the Work in a manner to facilitate the intersecting projects.

(i) City of Kitchener Intersecting Projects

The City of Kitchener has several projects planned which may affect aspects of the Work. The following City of Kitchener projects are planned for 2014 through 2018.

**EXHIBIT 18.8-1 CITY OF KITCHENER INTERSECTING PROJECTS**

<b>PROJECT</b>	<b>TIMING</b>	<b>NATURE OF WORK</b>	<b>RAPID TRANSIT PROJECT CO REQUIREMENTS</b>
Ontario Street (Joseph to Charles)	Summer 2014- Anticipated Completion December 31, 2014	Full Reconstruction	<ul style="list-style-type: none"> <li>• Coordination of design activities with City</li> <li>• Completion of surface construction between limits of City's project and RT corridor</li> </ul>
Wellington Street (Walter to King)	Summer 2014- Anticipated Completion December 31, 2015	Full Reconstruction	<ul style="list-style-type: none"> <li>• Coordination of design activities with City</li> <li>• Completion of surface construction between limits of City's project and RT corridor</li> </ul>
Agnes Street (Walter to King)	Summer 2014- Anticipated Completion December 31, 2015	Full Reconstruction	<ul style="list-style-type: none"> <li>• Coordination of design activities with City</li> <li>• Completion of surface construction between limits of City's project and RT corridor</li> </ul>
Water Street S. (Joseph to King)	Spring 2014- Anticipated Completion July 2014	Surface reconstruction	<ul style="list-style-type: none"> <li>• Coordination of design activities with City</li> <li>• Completion of surface construction between limits of City's project and RT corridor</li> </ul>

**EXHIBIT 18.8-1 CITY OF KITCHENER INTERSECTING PROJECTS**

PROJECT	TIMING	NATURE OF WORK	RAPID TRANSIT PROJECT CO REQUIREMENTS
Queen Street	Currently Under Construction- Anticipated Completion December 31, 2013	Full Reconstruction	<ul style="list-style-type: none"> <li>• Coordination of Project Co's design and construction activities with City based upon City As-Built/Record Documents</li> </ul>
Maurice Street (Intersecting Cross Streets Unknown)	Not Proposed Until After the Opening of the LRT in 2019	Full Reconstruction	<ul style="list-style-type: none"> <li>• Coordination of Project Co's design and construction activities with City</li> </ul>

Project Co shall provide unfettered access at all times to the City of Kitchener and City of Waterloo and their agents to perform inspection of work being performed by Project Co on their behalf. Both Cities will perform due diligence in contacting and coordinating their inspections with Project Co and the MQAQC.

Project Co shall plan the Work utilizing the nearest ingress and egress from the nearest designated Region and City truck routes for all access, deliveries, demobilization, excavation, hauling, mobilization, recycling, refuse, removals, staging, and waste. Project Co shall minimize the disruption to surrounding residential streets and refrain from their use. Project Co shall obtain approval from the Region and City prior to the use of any residential street for the Work. Project Co is responsible for the restoration of all damages caused by its operations and work to all residential street usage.

Project Co shall sequence all underground utility, utility relocations, street lighting, traffic signal, and LRT system work to precede permanent roadway and trackbed work. Locations requiring road widening or relocations shall proceed in advance of track and station construction. Road work directly adjacent to track and station construction shall be sequenced after completion of the major structural work. Temporary hard surfaces shall be provided and maintained at all times during the Work until the below grade work and adjacent work is complete to allow for the permanent surface work.

The sequence of construction shall be developed to permit permanent and/or temporary roadway facilities or utility relocation work to proceed in advance of the main track construction, in order to minimize impacts on traffic and utility services during construction.

Project Co's scheduling of any weekend, night, and holiday work shall be subject to the coordination by Project Co and approval of the Region, respective City and agency having

jurisdiction. Project Co shall not assume in its Project Schedule the Region, respective City and agency having jurisdiction will permit weekend, night work and holiday work.

Project Co shall coordinate the relocation of all aerial utility plant with the respective public and private Third Party Utility. All public and private Third Party aerial utility plant lateral crossings of the trackway shall become underground plant work and completed and coordinated by Project Co. Project Co shall sequence and coordinate all aerial lateral crossings to underground laterals with all public and private Third Party utilities, utility relocations, and system work and precede permanent roadway and trackbed work. All utility connections to residences and businesses shall be the responsibility of Project Co and coordinated with the respective utility service and resident/owner and/or business and its tenants.

Project Co and its subcontractor staff and personnel shall not utilize the parking for any Project alignment business and their customers and residence parking for their personal vehicles. Violators will be towed at the vehicle owner's expense. Project Co shall arrange for its staff and personnel including its subcontractors, material men, suppliers, and vendor's offsite parking for all personal vehicles. Project Co shall provide a safe and convenient means of transporting all staff and personnel engaged in the performance of the Work to and from the worksites daily and during all hours of operation for the duration of the Project. The exception will be Project Co clearly marked company vehicles for management, superintendents, foreman which require small tools and materials to perform work, quality assurance and quality control personal and independent inspection staff, Region staff and their representatives, City staff and their representatives, agency staff having jurisdiction, railroad staff, railroad flagger supervisor, public and private Third Party Utility supervisor as examples. Project Co shall provide and obey with all parking regulations including the acquisition of parking permits for all vehicles required to be on the Project alignment, where applicable, due to limited parking and the desire to minimize disruption and availability of parking for business commerce, residents, and other needs.

Except those trees designated for removal by Project Co's approved design, Project Co shall provide protection measures and means, and maintain routinely all remaining trees along the Project alignment for the duration of the Project in accordance with RWSSP 565.01. Project Co shall establish tree protection zones with clear lines of delineation at the beginning of the Work. Project Co shall review the tree protection zones established at the beginning of the Work for each phase of the work and routinely instruct its staff and personnel and that of its subcontractors accordingly of the protection measures installed. Project Co and its subcontractors shall, when working within an established tree protection zone, modify its means and methods to minimize damage to the remaining trees. Damages caused by Project Co's activities to trees that remain shall be the responsibility of Project Co's to replace and maintain, as required, in kind of similar type and calliper.

Project Co shall be responsible for obtaining approvals, where applicable, and the control, design, development, construction, maintenance and up keep, repairs as required, and removal of all sealed engineering calculations, plans, working drawings, and data for all temporary false work, work plans, backfill, excavation, staging, open cuts, embankments and fills.

(b) Event and Statutory Considerations

Project Co shall coordinate the Work and Project Schedule in a manner acceptable to the Region and City planned events that will occur during construction and pre-revenue service and training. The events shall be shown on Project Co's Project Schedule with specific ties to predecessor

activities and successor activities that shall be met by Project Co to promote the safety of the spectators, event participants and organizers. Project Co shall construct the Work in a manner to facilitate the event.

Project Co is prohibited from performing any Work on the following statutory Canadian holiday days within the City of Kitchener and City of Waterloo: New Years Day, Family Day, Good Friday and Easter Monday, Victoria Day, Canada Day (Dominion Day), Civic Day, Labour Day, Thanksgiving Day, Remembrance Day, Christmas Day and Boxing Day. Project Co shall include these days within the Project Schedule with specific predecessor and successor activities that provides the safety of the community during non-work hours and progresses the completion of the Work.

Project Co shall include, at a minimum, in its Project Schedule, the following key *italicized* Festivals and Parades within the City of Kitchener and City of Waterloo as they relate to the Work. Project Co shall coordinate, plan, phase, sequence, stage and construct the Work to accommodate, as practical, the *italicized* key Festivals and Parades listed below. All other Festivals and Parades listed shall be coordinated and accommodated, where practical, by Project Co during its Work. Project Co shall recognize the importance of the local economy pertaining to these Festivals and Parades.

(i) Exhibit 18.8-2 Festivals and Parades

**EXHIBIT 18.8-2 Festivals and Parades - City of Kitchener & City of Waterloo**

Winter (January–March)	Summer (June-September)
<u>City of Waterloo</u> <ul style="list-style-type: none"> <li>• Winterloo</li> <li>• Wonders of Winter - Festival of Lights</li> </ul>	<u>City of Waterloo</u> <ul style="list-style-type: none"> <li>• Music and Movies in the Park</li> <li>• <i>Open Streets in uptown Waterloo</i></li> <li>• Royal Medieval Faire</li> <li>• Summer Concert Series</li> <li>• <i>Sun Life Financial UpTown Waterloo Jazz Festival</i></li> <li>• <i>Sun Life Financial Waterloo Busker Carnival</i></li> <li>• Turkish Festival</li> <li>• Chris Lane Memorial Concert</li> <li>• Tennis Fair</li> <li>• Neruda – KW Latin Fest</li> <li>• Uptown Market – Thursday’s in June through September</li> <li>• Indie Hour Concert – Friday’s in June through September</li> </ul>
<u>City of Kitchener</u> <ul style="list-style-type: none"> <li>• Lunar New Year(February)</li> <li>• Hockey Town (March)</li> <li>• St. Patrick's Day (March)</li> </ul>	<u>City of Kitchener</u> <ul style="list-style-type: none"> <li>• <i>Cruising on King(July)</i></li> <li>• Rock and Rumble Motorcycle Show (July)</li> <li>• Tooney Tuesdays(July)</li> </ul>



**EXHIBIT 18.8-2 Festivals and Parades - City of Kitchener & City of Waterloo**

	<ul style="list-style-type: none"> <li>• Kidspark(August)</li> <li>• <i>Kitchener Blues Festival(August)</i></li> <li>• Back to School Party - Movie Night (September)</li> <li>• The Word on the Street(September)</li> <li>• Pakistan Canadian Day (July)</li> <li>• Strongman Competition(July)</li> <li>• Canada Day (July)</li> <li>• Pupusas Festival(August)</li> <li>• Downtown Kitchener Ribfest (July)</li> <li>• Link Picnic (August)</li> <li>• One Book One Community(September)</li> </ul>
<b>Spring (April-June)</b>	<b>Fall (October-December)</b>
<u>City of Waterloo</u> <ul style="list-style-type: none"> <li>• Earth Day events</li> <li>• One Book, One Community</li> <li>• Quilt Display at City Hall-Waterloo</li> <li>• Mennonite Relief Quilt Sale</li> <li>• Kiwanis Music Festival</li> <li>• Classic Car Show</li> <li>• Music Monday</li> <li>• Great Ride N’Stride To Beat Cancer</li> <li>• World Partnership Walk</li> <li>• Summer Solstice Sampling</li> <li>• KW Walking Classic</li> <li>• Indie Hour Concert – Friday’s in May through June</li> </ul>	<u>City of Waterloo</u> <ul style="list-style-type: none"> <li>• <i>Kitchener-Waterloo Oktoberfest Parade (October)</i></li> <li>• <i>Oktoberfest 5km Fun Run</i></li> <li>• Oktoberfest Pancake Breakfast</li> <li>• Mayor’s Oktoberfest Luncheon</li> <li>• Oktober Feast</li> <li>• JDRF Ride For Life</li> <li>• <i>Remembrance Day (November)</i></li> <li>• <i>Santa Claus Parade (November)</i></li> <li>• Chanukah</li> <li>• Family NYE</li> <li>• Uptown Market – Thursday’s in October</li> </ul>
<u>City of Kitchener</u> <ul style="list-style-type: none"> <li>• Cinco de Mayo (May)</li> <li>• KW Multicultural Festival(June)</li> <li>• Tapestry(June)</li> <li>• tri-Pride (May-June)</li> <li>• Romanian Canadian Day (June)</li> </ul>	<u>City of Kitchener</u> <ul style="list-style-type: none"> <li>• Festival of Neighbourhoods(October)</li> <li>• <i>Oktoberfest Parade (October)</i></li> <li>• <i>Remembrance Day (November)</i></li> <li>• Christmas Fantasy(November)</li> <li>• Christkindl Market(December)</li> <li>• New Year's Eve Celebration (December)</li> </ul>

(c) Public and Private Third Party Utilities and Service

- (i) The Region has worked with all Region, City and public and private Third Party Utilities to advance where practical Early Work to mitigate utility impacts during the course of Project Co’s Work.

Project Co's Work may include but not limited to the complete abandonment, removal and disposal, adjustment, utility casing installation, complete relocation, utility encasement, partial removal and reinstallation, realignment, partial removal and capping, protection, support, and false work of these entities' physical plant and related equipment and systems: Allstream, Bell Canada, Bell 360, City of Cambridge, City of Kitchener, City of Waterloo, Hydro One Network, Inc., Kitchener-Wilmot Hydro Inc., Kitchener Utilities, Region of Waterloo, Rogers Communications, TELUS, Union Gas Ltd., Waterloo North Hydro Inc.

- (ii) Project Co shall coordinate, accommodate and provide within its Project Schedule including all predecessor and successor activities, Project Co's phasing, sequencing, staging, work plans and narratives, the work by public and private Third Party Utilities and firms working on behalf of the public and private Third Party Utility, and Project Co resource and cost-loaded work on behalf of the public and private Third Party Utilities. The work being installed, upgraded or relocated by the public and private Third Party Utility may or may not be in conjunction with this Project. The public and private Third Party Utility Early Work identified in the Public and Private Utility Matrix provided in the Project Agreement provides Project Co with completed and ongoing utility relocations. Project Co shall coordinate its activities so as not to conflict with the completion of the Early Work.
- (iii) Project Co shall familiarize itself and provide in its design and construction phasing, staging, and work plans with narratives the required physical separations between utilities.
- (iv) Project Co's shall maintain service at all times during its relocation or upgrade of any utility. Project Co shall plan, phase, sequence and stage all service disconnections and temporary conditions to prevent disruption to all businesses and residences affected. During any lengthy service disconnections temporary service, cutovers, and other disruptions, Project Co shall provide and make arrangements for all temporary means necessary to all businesses and residences affected. Project Co shall notify and provide ample time to accommodate the scheduling of City of Kitchener, Kitchener Utilities staff, to operate all City owned water valves within and adjacent to the Work. Project Co is prohibited from operating all City of Kitchener-owned and operated water valves.
- (v) Project Co shall notify and schedule Ontario One Call (On1Call), as required, for all utility locates including but not limited to any drilled shaft, excavation, open cuts, pile driving operations, and other activities that could disrupt utility services. Project Co shall satisfy itself through potholing and/or test pits prior to any design and/or construction activity that any planned below-grade work may proceed without disruption and to determine the exact location and depth of existing plant whether private or public. Project Co is responsible for all damages that result.
- (vi) Project Co shall provided P. Eng. sealed temporary bracing, false work, and shoring work plans, as required, to support existing utilities that remain during the phasing, sequencing and staging of the Work.
- (vii) Project Co shall provide sufficient distance between the work being performed by Project Co and that being performed by public and private Third Party Utilities so as not to violate any Federal, Provincial, Region and/or City labour by-laws, laws, regulations,

rules, and statutes. It is the responsibility of Project Co to coordinate its activities from a time and space perspective so as not to conflict with Additional Works or Third Party Work.

- (viii) Project Co shall plan, phase, sequence and stage its utility work and that of all required public and private Third Party Utilities taking into consideration the normal business hours of operations for all public and private Third Party Utilities. These are generally from 8:00 am to 5:00 pm weekdays, except statutory Holidays. All public and private Third Party Utilities have a twenty-four hour emergency service. In the event Project Co requires service beyond the normal hours of operation such as extended daily work hours, and weekend work for any public and private Third Party Utility, Project Co shall provide fourteen (14) calendar days written notice to the public and private Third Party Utilities affected and make all arrangements with the public and private Third Party Utilities for the Project Co's service needs including public and private Third Party Utility crews, Utility inspections, disconnects, temporary connections, cutovers, and like matters.
- (ix) Project Co's use of any existing street light in a temporary manner shall be coordinated with the Region, City, Hydro, and agency having jurisdiction. Project Co shall obtain approval to reuse any existing street lighting in a permanent condition as well with the Region, City, Hydro, and agency having jurisdiction based upon its pre-construction survey requirements contained herein. If approved to use existing street lighting in a temporary condition, Project Co shall re-lamp, as required including fixture appurtenances and be responsible for all utility cost of all street lighting during Project Co's Work including metering. Likewise, if approved to reuse existing street lighting in a permanent condition, Project Co shall make all repairs to the street lighting and appurtenances and re-lamp including fixture appurtenances all fixtures prior to placing into permanent service. Project Co shall coordinate all connections and service requirements with the local Hydro at all times during the Work. At no time shall the existing street lighting photometric levels be less than pre-construction levels.
- (x) Project Co shall coordinate and be solely responsible for its proposed temporary Overland Water Supply System. Project Co shall obtain relevant approvals with the Region, respective City, public and private Third Party Utility, emergency response services, businesses and residents for its location, flow and pressure, and connection requirements. Project Co shall be responsible for all design, reviews and approvals, by-law compliance, furnishing, delivery and installation including protection, permitting including Drinking Water License, maintenance, removal and disposal, upkeep, and repairs as needed. Project Co shall provide one (1) working day notice including the addresses and amounts of affected service to the City of Kitchener, Kitchener Utilities staff, if lead services are discovered on the private property owner's side.
- (xi) Project Co shall be subject to the City of Kitchener and City of Waterloo site plan approval process and procedures if plant work is located outside of the Region's Right-of-Way within the City of Kitchener and City of Waterloo.
- (xii) Project Co shall refer to and consider the public and private Third Party Utility plans and schedules contained herein for the Early Work the Region acquired for the Project Co's use and information in the development of its Work and Project Schedule.

- (xiii) Project Co shall provide for the duration of the Project Agreement a twenty-four (24) hour per day emergency response call procedure and protocols to the Region, respective Cities and their Call Centres, and private and public Third Party Utilities and emergency response providers. In the event Project Co fails to respond to any emergency call in a timely manner with respect to any utility failure located within the Project alignment Project Co has affected, the Region, respective City, and private and public Third Party Utility shall have the right-to-enter the Project alignment without prior notification to make all repairs necessary on behalf of Project Co. All costs associated with the emergency repair will be borne by Project Co including Region, respective City, and Third Party Utility.

Project Co shall coordinate and schedule its work with Kitchener-Wilmot Hydro Inc. work on Charles Street West from the intersection of Queen Street to the intersection of Benton Street which is required as a result of the Project. In addition, Project Co shall coordinate and schedule its work with Kitchener-Wilmot Hydro Inc. work at the intersection of Ontario Street on Charles Street also a result of the Project. The Kitchener-Wilmot Hydro Inc. work at these locations is anticipated to occur during the second and third quarters of 2015.

The following typical lead times shall be used by Project Co in its Project Schedule for the delivery of underground materials required by Kitchener-Wilmot Hydro Inc. (KWH) as a result of any Project Co approved design involving below grade relocation or adjustment by KWH. These time frames do not include Kitchener-Wilmot Hydro Inc. design and the approvals required by the agencies having jurisdiction. These time frames are subject to market fluctuations and availability.

Pull boxes (8 to 10 weeks)  
600 MCM primary cables (17 to 20 weeks)  
250 MCM network secondary cables (17 to 24 weeks)  
2/0 PILC lead cable primary network (24 to 30 weeks)  
Moles and connectors for the network secondary cable (17 to 24 weeks)  
O/H cable (4 to 8 weeks)

Project Co is advised that Waterloo North Hydro Inc will require twenty (20) to twenty-four (24) weeks, subject to change due to market conditions and fluctuations, for the delivery of the meters and their appurtenances required for all substations located in the City of Waterloo. This is after receiving approved designs by Project Co to enable Waterloo North Hydro to complete its design and subsequent issuance of the purchase order for the meters.

(d) Site Availability and Milestone Completion Dates

(i) Constraint Notes:

- A. Exhibit 18.8-1, Exhibit 18.8-2, Exhibit 18.8-3 and Exhibit 18.8-4 and the other constraint notes are not intended to be all encompassing. However, they are to bring to the attention to Project Co the areas of sensitivity with respect to local access, traffic concerns, durations and completion milestones among other matters.

Project Co is advised that the Site Availability of the Project required Region "Lands" shall not be sooner than the dates indicated within the reference documents provided

under this Project Agreement, unless otherwise provided and notified by the Region to be available sooner. Project Co shall arrange, view, and secure all obligations and use with the Region on all Region “Lands” for the Project prior to their use by Project Co. Project Co shall refer to the Project Agreement for the type, size, and location of these “Lands”.

- B. Project Co shall coordinated all Work with the Region, Cities, BIA’s, churches, colleges, CN, Genesee and Wyoming formerly GEXR, GO, and VIA and their tenants where required and applicable, emergency response services, hospitals, malls, MTO (where required and applicable), residents, schools, Third Party Utilities, universities, businesses and other major institutions and establishments as required to properly coordinate and communicate any planned disruptions. Project Co shall from its approved TMP and individualized TCPs begin at a minimum of sixty (60) calendar days, again at thirty (30) calendar days and lastly seven (7) calendars in advance of any work notify all parties and the traveling public of any upcoming closures, disruptions, and changes in the work.

Local access to all businesses shall be maintained and provided at all times for deliveries, as well as access by owners, workers, patrons, clients, and vendors. Any change in the work sequence shall be approved by the Region in advance prior to its implementation.

In general, Uptown Waterloo, Downtown Kitchener, Conestoga Mall and Fairview Park Mall sales revenue are the highest during the late summer and through the end of the calendar year of any given year. As Project Co should expect, sales revenues drop off and vary by month for the remaining months of the year depending upon specific events, holidays and vacations in those remaining months. Project Co shall take this into consideration in the preparation of its Project Schedule and Work plans and shall work with the Region, BIA’s, Cities, and Malls to minimize the impact caused by construction.

- C. Project Co shall have its TMP and all individualized TCP traffic detours and rerouting required approved by the Region and agency having jurisdiction prior to any street, intersection, and lane closures, non-peak lane closures and reduced lane width closures, and other traffic disruptions. Project Co, with due process in mind, is encouraged and will be afforded the opportunity to construct Project segment lengths of the alignment of sufficient size to improve efficiency, lower cost and reduce post construction activities.
- D. All intersection closure work shall be approved by the Region, respective City, and agency having jurisdiction.
- E. Railroad

Project Co shall maintain continuous railroad operations on the Waterloo Spur, Guelph Subdivision at the King Street Grade Separation and Guelph Subdivision Huron Spur for CN, Genesee and Wyoming formerly GEXR, GO and VIA at all times other than approved outages and slow orders to allow the Work to Progress. Project Co’s work includes the temporary, as required and permanent relocation of these railroad corridors while maintaining continuous rail service for the Waterloo Spur and Huron Spur. Reference 18.10 Railroad Traffic, Signaling, and Crossing Warning System contained herein for additional required construction criteria to be considered by Project Co.

- F. Project Co shall maintain, at a minimum, of one lane in each direction on King Street between Northfield Drive and MTO Highway 85 (Conestoga Mall) at all times during the progress of the Work.

- G. Project Co shall maintain, at a minimum, of one lane in each direction on Northfield Drive from King Street to the Waterloo Spur at all times during the progress of the Work.
- H. Project Co shall not perform the King Street segment of the Uptown Waterloo Loop concurrently with the Caroline Street segment. However, an exception may be granted if Project Co can demonstrate to the Region and City both segments can be constructed concurrently by taking into account the following at a minimum: shorter duration as compared to each Loop performed sequentially; less disruption to the community through its work plans and narratives; more favourable comparison of TCPs (i.e. access, detours and re-routing of traffic); more efficient phasing, sequencing and staging of related activities in Project Co's Project Schedule that result in more efficient and effective achievement of milestone completion date noted herein. At no time shall the cross streets of William Street and Allen Street within the Downtown Loop be allowed to close at the same time. In addition, Union Street shall not be allowed to close during the construction of the Uptown Waterloo Loop work, unless approved by the Region, Cities and agency having jurisdiction.

I. King Street Grade Separation

This is predicated upon the substantial completion of the Weber Street Grade Separation and Weber Street Water Main projects. All non-disturbing activities such as data collection, pre-construction surveys and monitoring point preparation and establishment, surveying, site investigations such as utility potholing, geotechnical borings and well point work scheduled in a manner with the least disruption to traffic by Project Co and approved by the Region and agency having jurisdiction required for the Phase 1 design work to progress may be performed in advance of January 1, 2015 and coordinated with the Weber Street Grade Separation and Weber Street Water Main projects to maintain traffic on King Street and its adjoining streets in its present state to its fullest extent.

The construction work for the King Street Grade Separation shall not proceed until the Weber Street Grade Separation project is complete and functional, and all approvals by all parties have been provided in writing to Project Co and copies provided to the Region, i.e. CN, Genesee and Wyoming formerly GEXR, GO, VIA, Region, Cities and public and private Third Party Utilities, and other relevant authorities.

Project Co shall provide safe and convenient access at all times to the adjoining businesses, and residences during the grade separation work. This includes but not limited to providing emergency access, as well as patron and owner access for parking and vendor deliveries.

Project Co shall be responsible for obtaining and coordinating all track outages or temporary disruptions necessary to complete the work and meet its Project Schedule. This shall include but not be limited to coordinating slow orders, and coordinating its work with the scheduled train movements in conjunction with the train master of each organization, agency or firm with overriding authority for such train movements. Project Co shall keep the Region apprised of all communications and actions with CN, Genesee and Wyoming formerly GEXR, and GO and VIA daily.

Project Co's resulting final profile of the CN Guelph Subdivision railroad corridor shall be coordinated with the required work by Project Co at Park Street, Waterloo Street,

Duke Street and the required Project Co tie-in at the Weber Street Grade Separation project. This includes all required special trackwork on the Guelph Subdivision railroad corridor and Huron Spur. In addition, Project Co shall coordinate the Work with the planned future development of the HUB.

Project Co is advised of the importance of the Region's Transit HUB which abuts the Project alignment at the corner of King Street and Victoria Street. The Beer Store will be demolished by the Region prior to Project Co's access and use of the Lands. Project Co shall vacate the Transit HUB lands at 510 King Street at the completion of the Grade Separation milestone noted herein.

J. Victoria Street/King Street/Francis Street

All work within Victoria Street from its intersection with King Street to its intersection with Charles Street including the work within King Street at Victoria Street to its intersection with Francis Street and Francis Street to its intersection with Duke Street shall be coordinated, phased, sequenced and staged with the required work by Project Co for the King Street Grade Separation, the Region's Weber Street Grade Separation and the Region's Weber Street Water Main projects and any HUB work or planned developments within this area. This work may proceed in advance of the King Street Grade Separation work and during the Region's Weber Street Grade Separation work and the Region's Weber Street Water Main project. However, Project Co shall obtain approval of its phasing, sequencing and staging of the work, all required permits, TCPs and work plans with narratives from the Region, City and agency having jurisdiction prior to commencing any work, and all work shall be completed prior to the King Street Grade Separation work in the time frame called out in Exhibit 18.8-4. Further, all work on Victoria Street, Victoria Street/King Street to Francis Street and King Street/Francis Street to Francis Street/Duke Street shall be completed within one hundred twenty (120) calendar days from the time Project Co is approved and permitted to commence any work, and all work shall be completed by September 30, 2016. This work shall not occur at the same time as the work on Frederick Street and Benton Street from Duke Street to Charles Street.

K. Project Co may perform the Duke Street segment of the City of Kitchener Downtown Loop concurrently with the Charles Street segment. However, Project Co shall demonstrate to the Region and City both segments can be constructed concurrently taking into account the following at a minimum; duration as compared to each Loop performed sequentially or staggered/lag, comparison of the disruption to the community through its work plans and narratives, comparison of individualized TCPs, i.e. access, detours and re-routing of traffic, comparison of the phasing, sequencing and staging all tied to a comparison on Project Co's Project Schedule of predecessor and successor activities that efficiently and effectively complete both by a substantial earlier completion date than the milestone completion date noted herein. At no time shall the cross streets of Water Street, Ontario Street, and Queen Street within the Downtown Loop be allowed to close at the same time.

L. Project Co shall not perform the Borden Street segment of the City of Kitchener Loop concurrently with the Ottawa Street segment. However, if Project Co can demonstrate to the Region and City in its Proposal both segments can be constructed concurrently taking

into account the following at a minimum; duration as compared to each Loop performed sequentially or staggered/lag, comparison of the disruption to the community through its work plans and narratives, comparison of individualized TCPs, i.e. access, detours and re-routing of traffic, comparison of the phasing, sequencing and staging all tied to a comparison on Project Co's Project Schedule of predecessor and successor activities that efficiently and effectively complete both by a substantial earlier completion date than the milestone completion date noted herein. At no time shall Stirling Street and Mill Street be allowed to close at the same time.

Project Co shall coordinate the closure of Stirling Street and Mill Street with the individualized TCP proposed for the City of Kitchener Downtown Loop so that the proposed Project Co closures of Water Street, Ontario Street and Queen Street are coordinated.

M. MTO

Project Co work involving any MTO asset, regardless of type, shall be performed by approved MTO contractors under the direction of Project Co, unless Project Co is an approved MTO contractor in good standing and without claims and disputes with MTO.

The Region in cooperation with MTO is completing negotiations to have the Provincial Highway 7/8 Conestoga Highway Flyover structure and its appurtenances constructed under an existing MTO contract. The extent of the MTO contractor scope of work will be provided by the Region upon the successful completion of negotiations with MTO. Project Co shall coordinate its access and work for the CN Huron Spur with the MTO contractor while onsite until their completion and acceptance of their work by MTO and Region. Project Co shall anticipate full availability no sooner than January 1, 2015 and no later than March 31, 2015 to complete the balance of CN Huron Spur work by Project Co.

All structural upgrade work by Project Co on any MTO asset such as MTO Provincial Highway 85 Northfield Drive Flyover structure shall be coordinate by Project Co including but not limited to gaining approval. All structural upgrades, if required, including all individualized TCPs and traffic signals shall be coordinated and approved by MTO and the Region so as not to conflict with any adjoining MTO planned work and their contractors. All approved MTO structural upgrades shall be performed prior to any LRT work required on the structure, unless Project Co can demonstrate otherwise to MTO and the Region.

N. Facilities to be provided for the Railcar Manufacturer and its Subcontractors

Project Co shall provide to the Region, for the use of both its Railcar Manufacturer and its subcontractors not later than sixty days prior to LRV Acceptance Testing, located within the Operations, Maintenance and Service Facility the following: one (1) will lit environmentally controlled office suitable for four (4) desks, two (2) flat top tables, four (4) swivel armchairs, four (4) plain chairs, a small separate conference area with a table to accommodate six (6) swivel chairs and conference capabilities and six (6) four drawer fire proof legal size lockable file cabinets, which will be supplied by the Railcar Manufacturer, and; two (2) will lit appropriate work stations/work benches at the shop level and environmentally controlled for use by the Railcar Manufacturer and its



subcontractors to perform on-site repairs and suitable covered dry secure storage for the warranty spare parts of 600 sq. ft., all utilities including two (2) outside line telephones and two (2) inside line telephones (for which long distance charges shall be the responsibility of the Railcar Manufacturer), security, and janitorial services. Project Co shall design in sufficient and code complaint electric receptacles within the office area for the railcar Manufactures and its subcontractors use. Further, code compliant single and three phase electric service shall be provided within the two (2) work stations/work benches at the shop level for the Railcar Manufactures and its subcontractors use. At least one three phase 480 electrical service shall be available for air compressor, generator, welder, and like equipment use.

The Railcar Manufacturer shall be responsible for all required office equipment such as fax machines, photocopiers, computers, furnishings and any additional storage space. Project Co will cooperate and assist, where required, in aiding the Railcar Manufacturer and its subcontractors to carry out their duties; permission to park free of charge one mobile trailer adjacent to the maintenance facility for the storage of equipment and supplies; and parking free of charge for their subcontractor vehicles on the Region's property with a limitation of four spaces adjacent to the maintenance facility.

#### LRV Acceptance Testing - Test Track Requirements

At a minimum, Project Co shall complete all construction on the Waterloo Spur from Northfield Drive, the OMSF Yard, the OMSF and its appurtenances, and all mainline alignment track and special track work tested, inspected and safety certified up to and including all Project Co Work and Systems Work needed for LRV Acceptance Testing from Northfield Drive up to an including the Erb/Caroline Street signalized intersection and the King Street At-Grade Crossing warning protection system and LRT Systems Work portion of the Uptown Waterloo Loop to allow LRV/freight movements to occur on the permanent track for LRV Acceptance Testing of the vehicles. The "Test Track Requirements" shall include all permanent track and a fully functional Systems Work needed for LRV Acceptance Testing including all At-Grade Crossing warning protection systems as applicable, TPSS's, signalized intersections, wayside equipment, as required, to allow LRV/freight movements, track signage and stationing, permanent fencing and access and security gates, flaggers where and when required in support of and to enable the LRV Acceptance Testing. All adjoining work shall also be completed such as platforms and all back bone infrastructure to the platforms, all adjacent lands are restored to their final and permanent condition to enable a secure and safe test area. All remaining Design and Construction Works Project Schedule successor activities such as the shelters, cabling and wiring on the station stops only, Region provided and installed TVMs, Region provided and installed Vaildaters, Project Co station stop VMSs, emergency service and system service call buttons/phones and PA system and like components shall be completed by September 30, 2016 to support Project Co's Testing and Training Program.

This shall also include but not be limited to all substation work, permitting, OMSF Certificate of Occupancy, installations, interim inspections and testing, maintenance, appropriate and required staff and emergency response education, training and protocols, system safety certifications, appropriate and required system maintenance functions and operational tests and training where required among other Project Co support functions. Project Co shall perform in support of the Test Track Requirements in accordance with the Project Agreement and Exhibit 18.8-3.

**LRV Acceptance Dates and Availability for Use by Project Co**

The Region will be supplying Project Co with fully tested and accepted Light Rail Vehicles (LRV) under a separate contract with Bombardier Transportation System (BTS). Project Co shall refer to the Project Agreement and Schedule 35 for additional information related to the LRV's not stated herein.

**Exhibit 18.8-3 Site Availability and Completion Milestones**

<b>Project Alignment Area City of Waterloo</b>	<b>Site Availability Date</b>	<b>Milestone Completion Date</b>
A. Conestoga Mall	Financial Close, "Lands", and See Constraint Notes	September 30, 2016
B. King Street and Northfield Drive	Financial Close, "Lands", and See Constraint Notes	September 30, 2016
1. MTO Provincial Highway 85 Northfield Drive Flyover	Financial Close, "Lands", and See Constraint Notes	September 30, 2016
C. OMSF and Yard	Financial Close, "Lands", and See Constraint Notes	June 1, 2016
D. Waterloo Spur (Test Track Area) See Constraint Notes	Financial Close, "Lands", and See Constraint Notes	June 1, 2016
E. Uptown Waterloo Loop		
1. Erb Street/King Street to Union Street	Financial Close, "Lands", and See Constraint Notes	September 30, 2016
2. Erb Street/Caroline Street and Allen Street	Financial Close, "Lands", and See Constraint Notes	September 30, 2016

**Exhibit 18.8-4 Site Availability and Completion Milestones**

<b>Project Alignment Area</b>	<b>Site Availability Date</b>	<b>Milestone Completion Date</b>
<b>City of Kitchener</b>		
A. King Street at Union Street to King Street at Wellington Street	Financial Close, “Lands”, and See Constraint Notes	September 30,, 2016
B. King Street Grade Separation – Wellington Street to Victoria Street on King Street including Waterloo Street and Duke Street	Financial Close, “Lands”, January 1, 2015 to March 31, 2015 and See Constraint Notes	September 30, 2016
C. Victoria Street, King Street/Victoria Street and King Street/Francis Street	Financial Close, “Lands”, and See Constraint Notes	One Hundred Twenty (120) Calendar Days and completed by September 30, 2016
D. City of Kitchener Loops		
1. Francis Street to Frederick Street on Duke Street	Financial Close, “Lands”, and See Constraint Notes	September 30, 2016
2. Victoria Street to Benton Street on Charles Street	Financial Close, “Lands”, and See Constraint Notes	September 30, 2016
3. Frederick Street and Benton Street between Duke Street and Charles Street	Financial Close, “Lands”, and See Constraint Notes	September 30, 2016
4. Borden Avenue and Ottawa Street	Financial Close, “Lands”, and See Constraint Notes	December 31, 2016
E. Charles Street – Benton Street to Ottawa Street	Financial Close, “Lands”, and See Constraint Notes	December 31, 2016
F. CN Huron Spur – Borden Street to Hayward Avenue	Financial Close, “Lands”, and See Constraint Notes	December 31, 2016
1. MTO Provincial Highway 7/8 Conestoga Parkway Flyover	Financial Close, “Lands”, January 1, 2015 to March 31, 2015, and See Constraint Notes	December 31, 2016

**Exhibit 18.8-4 Site Availability and Completion Milestones**

<b>Project Alignment Area City of Kitchener</b>	<b>Site Availability Date</b>	<b>Milestone Completion Date</b>
G. Hayward Avenue, Courtland Avenue and Hydro One Network Inc. Corridor	Financial Close, “Lands”, and HONI Corridor - October 15, 2014 and June 30, 2015 and See Constraint Notes	December 31, 2016
H. Fairview Park Mall	Financial Close, “Lands”, HONI Corridor October 15, 2014 and June 30, 2015 and See Constraint Notes	December 31, 2016
Project Alignment Construction Completion - All Design and Construction Works		No Later Than December 31, 2016 to provide for Project Co’s Testing, Training, Emergency Preparedness and Response Testing and Training among others and Community Education and Training by Project Co Operations and Maintenance

**18.9 Traffic Management Plan**

(a) General

Project Co shall prepare a comprehensive Project wide and Project specific Traffic Management Plan (TMP). The plan shall provide detailed drawings, individualized Traffic Control Plans (TCPs), sequences of operations and Project Scheduled tied timing of predecessor and successor activities for continuous, seamless and fluid work to progress the Project to its milestone completion dates. The TMP and individualized TCPs shall be prepared and coordinated with the Region, Federal, Provincial and Cities as well as Emergency Medical Services (EMS), Police Departments, and Fire Departments. The TMP and individualized TCPs shall be submitted for approval by the agencies with authority, as required. Traffic movement shall be inhibited as little as practicable. The basic safety principles governing the design of permanent roadways, streets, and roadsides shall also govern the design of construction and maintenance sites. The goal shall be to route through such areas with geometric and traffic control devices and temporary traffic signals, where required, similar to those used for normal highway situations, meeting generally accepted design criteria.

All work by Project Co within Federal, Provincial, Region and City Right-of-Way, i.e. road allowance, shall comply with the restrictions and conditions of the Federal, Provincial, Region, City of Waterloo, and City of Kitchener. Restrictions shall apply to debris, dirt, dust,

construction vehicle emissions, mud, and noise-generating activities such as pile driving, as well as traffic issues.

Project Co is advised the Region and Cities require Work Permits to commence any work. Project Co shall obtain approval of its design, TMP and individualized TCPs from the Region, respective City and agency having jurisdiction to enable the Work. Project Co shall comply with all Work Permit requirements and obligations including documentation.

Project Co shall coordinate its Work with the Region, City and agency having jurisdiction with respect to all approved individualized TCP traffic related signs, signage and appurtenances for the Project.

Project Co shall not price the procurement and fabrication of the approved traffic static signs, signage and their support appurtenances. Project Co shall provide all approved individualized TCP static sign(s), signage and their support mean(s) shop drawings to the Region's sign shop for procurement and fabrication. Project Co shall provide ample time in its Project Schedule for the fabrication of the signs and their supports by the Region.

The Region shall be responsible for all approved individualized TCP advanced traffic warning static signs, signage and appurtenance delivery, unloading, installation, temporary bagging when required and coordinated, relocation when and as required to accommodate Project Co's individualized TCP work progress, the maintenance, setup, and subsequent removal and disposal from the Project in an environmentally safe manner upon Project Co's specific TCP work completion in accordance with the Project Agreement. Project Co shall procure and deliver to the Region and respective City for unloading at an agreed to prior location all approved individualized TCP advance traffic required barrels, delineators, and traffic marking materials for their use and installation during all approved individualized TCP advanced traffic related requirements. Project Co's Work shall not interfere with the Region, City or agency having jurisdiction installation, temporary bagging when required and coordinated, relocation when and as required to accommodate Project Co's Work, maintenance, setup, and subsequent removal of these signs, signage and their appurtenances. However, Project Co shall alert the Region in a timely manner to issues pertaining to the performance by the Region for this work. Project Co shall be responsible for the restoration to an equal or better condition than existed prior to the commencement of the work on the Lands and within the road allowance at the individualized TCP advance traffic sign and signage locations as a result of the signs, signage and appurtenance installation, removal and disposal by the Region. Project Co shall be responsible for the daily and weekly documentation and enforcement of the approved individualized TCP advance warning material set-up by the Region for conformance with the Project Agreement.

From the Region provided sign, signage and support appurtenances, Project Co shall be responsible for all individualized TCP loading of completed sign materials from the Region sign shop, delivery, unloading, installation, temporary bagging when required and coordinated, relocation when and as required to accommodate Project Co's approved individualized TCP work progress, the maintenance, setup, relocation, and subsequent removal and disposal from the Project in an environmentally safe manner upon Project Co's specific TCP work completion within the adjacent and more immediate Project limits of construction for the Work. Project Co shall procure, deliver, install maintain, clean, relocate, and subsequently remove from the Project all approved individualized TCP required barrels, delineators, and traffic marking materials used during the adjacent and more immediate construction limits on the approved individualized TCP

work. Project Co shall have the sole responsibility of installing, maintaining, relocating and removing the adjacent and more immediate construction limit traffic warning materials and advisories. Project Co shall be responsible for the restoration to an equal or better condition than existed prior to the commencement of the work on the Lands and road allowance at the individualized TCP adjacent and more immediate Project limits of construction traffic sign and signage locations as a result of the sign and signage installation and removal by Project Co. .

Project Co shall notify in writing the Region, respective City and agency having jurisdiction a minimum of forty-eight (48) hours in advance of any TMP revision and/or required individualized TCP modification to fit Project Co's work progress.

Project Co shall coordinate and obtain approval on all required work and on all matters pertaining to MTO Provincial Highway 85 and the Northfield Drive Flyover structure as well as Provincial Highway 7/8 Conestoga Parkway Flyover structures for the CN Huron Spur and LRT.

Project Co shall reduce exposure and potential hazards to the traveling public and community by phasing, sequencing, scheduling, and staging the Work to minimize durations.

Project Co shall restore all infrastructure, including but not be limited to streets, roads, driveways, sidewalks, boulevards, facilities, public and private Third Party Utility, private property, and other access that was disturbed during construction of the Project. Restoration shall occur within an acceptable time frame so as not to impact the infrastructure's use and/or operation, public and private Third Party Utility use and operation, and/or private property owner use, access and livelihood. This includes but is not limited to the removal of all debris and cleaning affected areas. In addition, all damage caused by Project Co's work shall be compensated or restored to its previous condition at Project Co's expense.

Project Co may utilize existing traffic signal equipment during temporary traffic signal required work. Project Co shall coordinate and be solely responsible for its temporary work use requirements with the Region, respective City and Hydro including metering and service costs. Project Co shall coordinate, design, procure, install, provide and coordinate all permanent Hydro service connections and metering, maintain as required, permit and warrant, test, and commission all new signalized intersection equipment and materials required as a result of Project Co's Design and Construction Works and for greater clarity all permanent and any new traffic signal installations shall not use any salvaged materials and equipment. During all temporary and permanent new traffic signal work, Project Co shall coordinate and invite the Region, Region Traffic Signal Representative(s) and respective City Traffic Department representative(s) to witness all temporary and permanent traffic signal installation work. This is not to be construed as a condition of acceptance, merely for witnessing the installation. Where existing traffic signal foundations and their anchor bolts and grounding, hand holes and lids, junction boxes and lids and conduit duct banks are not affected and subject to relocation and damage by Project Co's approved design and installation needs, Project Co may reuse the existing foundation and its anchor bolts, hand holes and lids, junction boxes and lids and conduits subject to a vigorous pre-construction and design field acceptability assessment and report, design calculation verification, all materials to remain are subject to restoration and rehabilitation by Project Co to like new condition, and stamped and sealed calculations, construction specifications, reports and drawings in accordance with the Project Agreement. Project Co shall confirm existing foundations are grounded prior to any re-use. Any grounding found not to exist or damaged shall be replaced

with new grounding materials, tested and commissioned in accordance with the Project Agreement.

Local Access

Local access to all businesses and residences shall be maintained at all times for pedestrians and vehicles. Project Co shall notify and obtain approval from the Region and Cities during Phase 1 TMP and the individualized TCP for the proposed work. Project Co shall after approval of its Phase 1 TMP and individualized TCPs begin Phase 2 design, TMP and individualized TCPs for construction. Project Co shall upon approval of a Phase 2 Work Package/Design Unit and the beginning of any construction at a minimum of sixty (60) calendar days, notify the Region, City and all affected parties within the approved TCP and confirm again at thirty (30) calendar days, and lastly seven (7) calendar days in advance of any disruption to existing local access based upon the approved design and TCP. Project Co in coordination with the Region shall notify the affected businesses and residences within the same time noted herein. Project Co shall not commence any construction activity until the agency having jurisdiction approves the Traffic Management Plan (TMP) and individualized Traffic Control Plan (TCP) for each Phase of a Work Package/Design Unit and the affected parties have had time to comment and vet the proposed individualized TCP. Project Co shall comply with agency-directed revisions in the Traffic Management Plan (TMP) and individualized Traffic Control Plans. Project Co shall provide and be responsible for the delivery, unloading, set-up, maintenance, relocation and removal of portable Variable Message Signs (VMS), as required and where applicable, throughout the Project at all times and modified accordingly to fit the traffic warnings and patterns in affect. Seven (7) calendar days in advance of any approved closure, traffic disruption due to planned Project Co operations, and planned traffic pattern changes. Project Co shall coordinate with the Region, Cities, and MTO, as required, all VMS messages alerts to drivers of the upcoming closure in accordance with the approved work plans with narratives.

(i) Emergency Response Services

Project Co shall provide and maintain access for emergency response providers at all times, and assist any emergency response provider where required through the Work, during any street, intersection or lane closure. Project Co shall coordinate and inform all emergency response services on a routine basis of all approved and/or modified full and/or partial lane closures and all detours in affect.

(ii) Maintenance

Project Co shall be responsible for maintaining and protecting the safety of motorists, cyclists, pedestrians, and workers in the vicinity of construction and maintenance areas at all times and on a daily basis during the course of the Work. Traffic safety in construction zones shall be an integral and high-priority element of the LRT from planning through design and construction. Similarly, maintenance work shall be planned and conducted daily to provide for the safety of motorists, cyclists, pedestrians, and workers. This includes the cleaning, removal, repair and replacement of all traffic control devices and equipment employed and required by the work such as barrels, barricades, delineators, fencing, lights, pavement markings, signs and posts, traffic barriers, VMS, warning signs, and other types of work zone separators as needed and within and under its control. Project Co shall implement and provide an emergency procedure and protocol

for damages to any individualized TCP during Project Co non-working hours caused by others. The procedures and protocols shall include the notification of the Region. All repairs caused by others to the individualized TCP shall be rectified prior to the next work day rush hour or planned event but no later than needed by Project Co to resume Work. Project Co shall have sufficient replacement materials available or access to materials at all times including manpower to begin the repairs on short notice necessary to remain compliant to resume Work.

(iii) Snow and Ice Removal

Project Co shall comply with Municipal Act, 2001, Ontario Regulation 239/02 Minimum Maintenance Standards for Municipal Highways and all updates that occur from time to time except as modified herein to require a higher standard of service and compliance.

Project Co is advised that no snow and ice shall accumulate under its control for the duration of the Project. This more restrictive requirement is due in part to the importance of this Project and Project Co's responsibility to provide and maintain access at all times to the affected businesses, residents and emergency response providers.

Project Co shall be responsible for all snow and ice removal, maintenance, sanding operation, as required, and its subsequent cleaning and removal, and control along the Project alignment including the intersecting projects included in this Project Agreement.

Project Co shall begin its snow and ice removal operation when it takes control of an approved TCP area to perform any work along the Project alignment and shall include the entire Right-of-Way of the individualized TCP and Active Construction Zone including all bike lanes, boulevards, driveways, LRT guideway, multi-use trails, sidewalks, streets and road allowance as defined in the Project Agreement under an Active Construction Zone and Article 18.9. Project Co shall continue this requirement until Project Co has completed the construction work within the Active Construction Zone and in accordance with Article 18.9 at which point the Region and/or respective City will assume control of all snow and ice removal within the remaining travel lanes for vehicular traffic only.

The LRT guideway snow and ice removal, maintenance and control shall remain the responsibility of Project Co in accordance with the Project Agreement, Article 18 and until the commencement of revenue service operations. Project Co shall coordinate its snow and ice removal operations for the LRT guideway with the adjoining Region and City operations that result from the turn over after the completion of an Active Construction Zone. Project Co shall not allow snow and ice to accumulate on the LRT guideway that it controls. All snow and ice piles shall be removed by Project Co to prompt the safety of the workers, any ongoing Work, and community.

Project Co's Work, TMP, TCPs and Project Schedule shall consider well in advance the return of an Active Construction Zone to the Region and City. Project Co shall develop and submit a plan for the training of Region, City and their subcontractor staff engaged in the removal of snow, ice and de-icing operations over the LRT guideway at intersections. The plan and training shall instruct the Region, City, and their subcontractor staff on the proper equipment or existing equipment modifications potentially required for plowing or ploughing and the techniques required for snow and ice removal over an LRT guideway. The plan and training shall also address the use of de-icing materials and sanding. The



intent is to promote and prevent damage of newly installed Project Co work which Project Co shall remain responsible.

Project Co shall coordinate and plan well in advance and just prior to taking control of an approved TCP area for snow and ice removal, maintenance, sanding and control measures with those of the Region and Cities including the over lapping limits outside of the Active Construction Zone and Article 18. Project Co shall develop a protocol that shall include written correspondence as well as verbal communication and follow-ups with the Region and respective City. At a minimum, Project Co shall provide written and verbal notifications in accordance with Article 18.9 TMP and TCP of sixty (60), thirty (30) and seven (7) calendar days including an e-mail and phone call follow-up of twenty-four (24) hours prior to taking control of an approved TCP area. Project Co shall also include in this protocol the communications procedures with the Region, City and their subcontractors during its control of any Active Construction Zone snow and ice removal operation. Project Co shall follow a similar protocol when the TCP area will be returned to the control of the Region and City with the exception of the Project Co's LRT guideway.

Project Co shall prepare and stage all personnel, materials and equipment well in advance of all snow and ice weather related events and advisories and begin snow and ice removal, and de-icing operations as conditions occur.

Plowed or ploughed snow and ice by Project Co's operation will not be allowed to accumulate in piles along the Project alignment, TCP and Active Construction Zone, i.e. intersections, roadway, multi-use trails, street, sidewalks, driveways and other access points, at any time creating an unsafe condition. Project Co shall remove and dispose of all plowed or ploughed snow and ice pile accumulations within the TCP and Active Construction Zone and Article 18 as a result of its snow and ice removal operations within twenty-four (24) hours of an event. The continuation of the removal will be a function of snow accumulation and to the Region and Cities satisfaction. All removal and disposal shall be performed in an environmentally safe manner.

Project Co shall furnish, install, maintain and properly remove and dispose of all snow fencing in advance of winter weather and as conditions require its use along the Project alignment, Active Construction Zones and Article 18.

Project Co shall develop and employ a twenty-four (24) hour seven (7) day a week Road Patrol monitoring system to be implemented from October 1 to May 1 due to the potential for inclement weather. Project Co shall not allow the accumulation of snow and/or ice to occur.

Due to the need to maintain access to all businesses and residents at all times, Project Co shall for the purposes of snow and ice removal operations on this Project and this Project Agreement, consider all roads as a Class 1 Highway except as modified herein to require a higher standard of service and compliance.

The safety of the Project workers, traveling public, pedestrians and businesses is paramount.

- (iv) Tow Service

Project Co shall coordinate and provide a Project Co standby (24/7) tow service compliant with the tow by-laws of the Region and respective City along the Project alignment at all times and particularly during critical cases, lane closures due to construction, and approved intersection closures.

(b) Definitions

- (i) Street Closure: The complete closure and completion of all Work by Project Co within a Region and/or City Right-of-Way road and/or street with local access planned, phased, sequenced, staged and maintained by Project Co at all times for all businesses and residents affected including emergency response services. Project Co shall obtain approval for the Street Closure from the Region, City and agency having jurisdiction prior to the closure including its work plans, Active Construction Zone, Traffic Control Plan (TCP), fragnet schedule of predecessor and successor activities with accompanying narrative. Project Co shall not be permitted to advance to the next phase or stage of work until the Restoration of all hard surfaces, including but not limited to curbs, road/street pavements, business and residential driveways, sidewalks and stairs, have been completed. Work not included in hard surfaces are systems work such as system cabling and wiring, permanent traffic signals, permanent signage, LRT stops and finishes, permanent landscaping, or other aspects of subsequent Project work, provided that this subsequent work can be completed with minimal disruption to businesses and residents. Project Co shall provide, as required, and maintained at all times, traffic movements through the completed work including emergency response services until the Project Co completes the successor activities.
- (ii) Intersection Closure: The complete closure and completion of all Work within the intersection by Project Co of a Region and/or City road and/or street. Project Co shall obtain approval for the Intersection Closure from the Region, City and agency having jurisdiction prior to the closure including its work plans, Active Construction Zone, Traffic Control Plan (TCP), fragnet schedule of predecessor and successor activities with accompanying narrative. Project Co shall provide local access for emergency response services at all times during the closure. Project shall not be permitted to advance to the next phase or stage of work until the Restoration of all hard surfaces, including but not limited to curbs, road/street pavements, business and residential driveways, sidewalks and stairs, have been completed. Work not included in hard surfaces are systems work such as system cabling and wiring, permanent traffic signals, permanent signage, permanent landscaping, or other aspects of subsequent Project Work, provide that this subsequent work can be completed with minimal disruption to businesses and residents. Project Co shall provide, as required, and maintained at all times, traffic movements through the completed work including emergency response services until the Project Co completes the successor activities.
- (iii) Lane Closure: The closure of a Region and/or City road and/or street traffic lane to complete the Work required by Project Co within this traffic lane between two signalized intersections. This applies to either a four or two lane road and/or street. Project Co shall plan, phase, sequence, stage the work and maintain local access at all times for all businesses and residents affected including emergency response services. Project Co shall obtain approval of the Lane Closure from the Region, City and agency having jurisdiction. In the case of a Region and/or City road and/or street with two lanes of

traffic only, Project Co shall provide the minimum lane widths in accordance with accepted and approved industry engineering practice, by-laws, codes and standards to allow the work to progress and maintain local access. In both instances, Project Co shall provide for approval its work plans, Active Construction Zone, Traffic Control Plan (TCP), fragnet schedule of predecessor and successor activities with accompanying narrative. Project shall not be permitted to advance to the next phase or stage of work until the Restoration of all hard surfaces, including but not limited to curbs, road/street pavements, business and residential driveways, sidewalks and stairs, have been completed. Work not included in hard surfaces are systems work such as system cabling and wiring, permanent traffic signals, permanent signage, permanent landscaping, LRT stops and finishes, or other aspects of subsequent Project Work, provided that this subsequent work can be completed with minimal disruption to businesses and residents. Project Co shall provide, as required, and maintained at all times, traffic movements through the completed work including emergency response services until the Project Co completes the successor activities.

- (iv) Non-Peak Traffic Lane Closure: The non-peak traffic lane closure shall be from 9:00 am to 3:00 pm on weekdays, 7:00 am to 7:00 pm on Saturday, and Sunday work, as permitted by the Region and Cities, to permit the completion of work within the traffic lane, Active Construction Zone, and Traffic Control Plan (TCP) by Project Co. The opening of all Non-Peak Traffic Lane Closures at the end of each day of closure shall be comprised of hard temporary surfaces meeting the minimum acceptable engineering standards for safe traffic and pedestrian movements. Project Co shall obtain approval from the Region, City and the agency having jurisdiction to issue exceptions to by-laws, permits, variances, zoning, and other rules for its Hours of Operation outside these times.
  - (v) Reduced Lane Width: The temporary reduction in lane width by Project Co of existing lane widths and/or current compliant lane widths meeting code and engineering standards. Any temporary reduction in lane width by Project Co shall meet the acceptable minimum code compliant temporary lane widths through the application of sound engineering standards and practice employed by the Federal, Provincial, Region and City along with the applicable temporary traffic control measures employed to fit the resulting condition.
  - (vi) Hours of Operation: Work shall be completed in accordance with the Project Agreement, and all Federal, Provincial, Region, and City agreements, by-laws, laws, labour agreements, ordinances, rules, regulations, zoning, and all public and private Third Party Utility agreements, rules and regulations. Project Co may apply to the Region, City and agency having jurisdiction for a variance or exception to such by-laws, ordinances, rules, regulations, and zoning.
  - (vii) Restoration: The complete restoration of all surfaces disturbed during construction to either their final and permanent condition or previously agreed to temporary condition within an acceptable time frame so as not to impact the infrastructures use and operation, public and private Third Party Utility use and operation, and private property owner use, access and livelihood after the return of an Active Construction Zone and TCP to the Region and City.
- (c) Criteria and Application of Standards

Project Co shall utilize the basic principles, practices and standards of construction, application, control and maintenance of the required various types of traffic control devices required for street construction and traffic maintenance operation work. These principles, practices and standards apply to the safe and expeditious movement of traffic through construction and maintenance zones and the safety of the work force performing these operations. Minimum standards of application, including temporary pavement, traffic control devices, temporary traffic signals, pavement markings, barricades, channelizing, and hand-signaling devices, i.e. flagging and off-duty officers, are prescribed for typical situations and for controlling traffic through work areas. A Traffic Management Plan (TMP) and individualized Traffic Control Plans (TCPs) for the maintenance of traffic shall be developed by Project Co and submitted to the Region and governing agency for review and comment.

Project Co shall apply and utilize, at all times, the latest edition of approved traffic control standards and their amendments to conform to all Federal, Provincial, Region of Waterloo, City of Waterloo, and City of Kitchener widely recognized guidelines, criteria, standards, and specifications. In the event of conflicts in the guidelines, criteria, standards, or specifications of these various references, the more restrictive shall apply in all cases.

Temporary lane widths when more than one lane is available shall be no less than the required Region and/or City minimum requirements established by by-law, code, law, ordinance, standard, and/or regulation for the Region and City Street and Provincial facilities. In certain instances shoulders and parking lanes may be used, upon approval from the Region, City and agency having jurisdiction, as temporary traffic lanes; however, any damage to the shoulders or parking lanes from such use shall be repaired by Project Co. Damages caused by Project Co's Work shall be repaired to an equal or better condition than that which existed prior to the Work commencing and in accordance with the applicable by-laws, codes, design, regulations, and standards at the time. Project Co shall document the existing condition prior to any Work commencement. Failure will leave Project Co to the subjectivity of the Region, City and agency having jurisdiction decision.

Project Co shall comply with Highway Traffic Act (HTA) section 144(31), where no traffic control signal system or traffic control signal used in conjunction with a traffic control signal system shall be erected or installed except in accordance with an approval obtained from a person designated to give such approvals by the municipality or other authority that has jurisdiction over the highway or the intersection.

As per Regional practice, all drawings prepared by Project Co shall be signed and sealed by a Professional Engineer licensed to practice in Ontario. The Region of Waterloo authorized Manager, Transportation Engineering, or in his/her absence the Director, Transportation, shall approve traffic signal designs and installations on Regional roads. It is the Region's practice that all efforts should be taken to construct the traffic signal as per the legal drawing approved by the Manager or Director of Transportation. Should any unforeseen major design change(s) during construction of a traffic signal be required, the Manager or Director should be advised of the change(s) and a new drawing shall be prepared by Project Co and approved prior to the change taking place on street.

Legal approvals shall first be obtained prior to the construction of all new signal installations.

A. Traffic Control Devices: Applications and Design Guides

1. The location and placement of all signs and signage shall conform to the MTO Book 7. The material and construction requirements shall conform to the MTO Standard Specifications.
2. The location and placement of channelizing devices shall conform to the latest edition of the MTO Book 7.
3. All directional signs and signage used for guiding patrons shall conform to the latest edition of the MTO Book 7.
4. The location and placement of traffic and pavement markings shall conform to the latest edition of the MTO Book 7.
5. The location and placement of pedestrian traffic signal heads shall conform to the latest edition of the MTO Book 12 for AODA.

Project Co shall demonstrate in the Traffic Management Plan (TMP) and individualized Traffic Control Plans (TCPs) adequate excess capacity will be available on the resulting configuration to accommodate additional traffic diverted from the other tributary streets. Any detour or diversionary plan shall include traffic mitigation measures where excess capacity is not available. At least one lane shall remain open in each direction at all times, with the exception of street closures and lane closures due to prior agency approval and for emergencies.

Project Co shall demonstrate, through its traffic analysis, TMP, TCPs, and sequence of the work, the developed detour routes effectively control traffic as a result of any proposed closure for review and approval by the Region, respective City and agency having jurisdiction. The Region and respective City, and agency having jurisdiction, shall have final approval of all proposed street closures, lane closures and intersection closures. If approved by the Region, respective City and agency having jurisdiction, street closures, lane closures, and intersections shall reopen within the approved Region and respective City and agency having jurisdiction time frame without exception and no excuses to allow traffic to resume to pre-construction traffic flow. Failure to open will result in liquidated damages being assessed in accordance with the Project Agreement.

Special maintenance and protection of traffic requirements shall be developed by Project Co, as required, for specific instances and situations as well. These shall be a part of the overall plan and again detailed and tied to the Project Schedule. Such instances can include Region and City special events, festivals and parades.

(d) Traffic Management Plan and Traffic Control Plan Considerations and Requirements

(i) Street, Intersection, and Lane Closures

Motorists shall be guided in a clear and positive manner while approaching and traversing construction and maintenance areas. Adequate warning, delineation, and channelization by means of proper pavement marking, signing, variable message signs (VMS), and use of other devices effective under varying conditions of light and weather shall be provided for positive guidance of the motorist in advance of and through the work area. Inappropriate markings shall be removed immediately to eliminate any misleading cues to drivers under all conditions of light and weather. Project Co shall provide advance notification of all closures, lane restrictions or other traffic disruptions. These publicly

displayed signage notifications shall be well placed and of proper size and in all directions of the planned closure or restrictions. Project Co shall provide to the Region and City the locations of these advance notifications within its TMP and on its TCPs to be placed a minimum of thirty (30) calendar days in advance. Project Co shall coordinate with the Region and City the digital media and print to be stated through radio and TV sources and print media, beginning seven (7) calendar days in advance and continuing each day up to the day of the closure or restriction.

All cross streets shall be kept open at all times to local traffic except during agency having jurisdiction approved closures, and all existing turn movements shall be maintained, as applicable. Local access and required turning movements shall be provided during agency having jurisdiction approved closures. The maximum reduction in cross street traffic on a Region or City streets shall be one lane in each direction unless otherwise approved by the Region, City, and agency having jurisdiction. In addition, in some instances, there shall be no reduction or impact of cross traffic on Region or City streets and/or roads unless otherwise approved by the Region and agency having jurisdiction. Lane closures and reductions on the Project alignment will be permitted only after review and approval for construction of LRT and ancillary work has been vetted by Project Co, Region and City and/or agency having jurisdiction.

Project Co will not be permitted to overhang signage or other indicators, any equipment, or materials over any of the active traffic lanes, including but not limited to cranes, drilling operations, excavation equipment, pile driving equipment, track equipment and/or any materials lifted by cranes, or other equipment and/or materials. The plan shall account for all overhead picks requiring any temporary lane closures and/or restrictions.

Project Co proposed and requested closures of any intersection from the Region, City and agency having jurisdiction shall be completed in the approved time frame. Project Co shall complete all Work within the intersection including all cross streets and/or roads in this time frame. Failure to reopen will result in liquidated damages being assessed in accordance with the Project Agreement.

Project Co shall develop individualized TCP's for the three Project alignment loops tied to the Project Schedule including all phasing, sequencing, staging and work plans with narratives, proposed and requested closures times and durations, detour and rerouting of traffic for review and approval by the Region, City and agency having jurisdiction.

Project Co proposed and requested street closures shall be reviewed and approved by the Region, City and agency having jurisdiction. Appropriate traffic detour plans shall be developed by Project Co for street closures and included in the Traffic Management Plan (TMP) and individualized Traffic Control Plan (TCP). The exception will be the King Street Grade Separation.

Project Co required and requested street closures for traction power sub-station installation, bridge girder erection and like matters shall be coordinated with the Region, City and agency having jurisdiction. They shall be completed in durations as short as practical.

Project Co shall provide written notice of any change in the Traffic Management Plan (TMP) and individualized Traffic Control Plans (TCP) to the Region, respective City and

agency having jurisdiction a minimum of forty-eight (48) hours in advance for review and approval. Project Co shall follow-up any written requested TCP change with a phone call for confirmation that it may proceed with the requested change a minimum of twenty-four (24) hours prior to the change commencing including a confirming e-mail of the resulting conversation with the Region, City and agency having jurisdiction.

Project Co shall recognize, coordinate and accommodate the Region, respective City and agency having jurisdiction supplying and installation and/or erection of signs within or outside of the Project Site for public information, including Project information boards, signs directing the public to local businesses, advisories of upcoming Project Co operations, or other information signs. Project Co shall coordinate and ensure its work does not interfere or conflict with these postings and signs.

Project Co shall accommodate and coordinate with the Region's Traffic Operations at all times during the Work. This includes the Region, respective City and agency having jurisdiction manufacturing and installation of all traffic detour and advance warning signs for this Project. Project Co shall notify the Region, respective City and agency having jurisdiction in advance and work in conjunction with the Region's Traffic Operations staff, respective City and agency having jurisdiction for the effective setup and changing of detour and access signage in order to maintain access to existing businesses and residences at all times.

(ii) Truck Routes

Project Co's TMP and TCPs shall utilize the nearest designated Region and City truck routes for the Work including but not limited to access, deliveries, demobilization, excavation, hauling, mobilization, recycling, refuse, removals, snow and ice removal, staging, and waste. Project Co shall minimize the disruption to surrounding residential streets and refrain from their use. Project Co shall prepare and demonstrate in its work plans Traffic Management Plan (TMP) and individualized Traffic Control Plans (TCPs) which truck routes will be utilized during the Work and individualized work plans. Project Co shall obtain approval from the Region, City and agency having jurisdiction prior to the use of any residential street for the Work by preparing and providing individualized plans to demonstrate to the Region, City and agency having jurisdiction the need for the use of the residential street. Project Co is responsible for the Restoration of all damages caused by its operations and work to all residential street usage.

(iii) Flaggers and Off-Duty Police

Flagging, and if required by the Region and/or City traffic control policy, traffic direction by off-duty police officers shall be provided, and employed only when required to control traffic, or when all other methods of traffic control are inadequate to warn and direct drivers. They shall be made available 24/7, as required. Project Co shall not offer any excuses for this requirement.

Project Co shall provide individuals trained, certified and properly PPE attired in the principles of safe traffic control at all work sites, ingress and egress points, and Active Construction Zones, deliveries among other conditions that require the safety of the public and workers. In addition, to ascertain all traffic control elements of the Project are in conformity with the Traffic Management Plan (TMP) and individualized Traffic

Control Plans (TCPs). These individuals shall ensure the effective placement, maintenance of materials and equipment installed, and condition of the plan provides for the safety of all motorists, cyclists, pedestrians, workers and businesses at all times. Project Co shall photograph daily and video weekly all Plan installed work. All traffic control devices shall be installed only when needed and removed immediately when no longer needed.

#### **18.10 Railroad Traffic, Signaling and Crossing Warning System**

(a) General

Project Co shall comply with all Canadian Transportation Agency and/or Transport Canada, Region, CN, Genesee and Wyoming formerly GEXR, GO, VIA, and their customers and tenant applications, permits, procedures, processes, rules and regulations with respect to construction on, near, adjacent, parallel, over, through, and under during operating railroad traffic. This includes but is not limited to all temporary conditions, such as construction clearances for all Project Co personnel and equipment engaged in this work; any temporary design needs and requirements to allow construction to progress; temporary signaling, warning requirements, equipment and the maintenance thereof; temporary trackwork; temporary special trackwork; all required flagging and watchmen lookout personnel and safety related requirements and equipment during construction; work stoppages; slow orders; and railroad outages.

Project Co shall be responsible for all requested temporary track crossings and special track work required as a result of the Work on any existing CN and Region railroad corridor and/or lines. Removal and disposal of all temporary crossing materials and special track work are the responsibility of Project Co to the satisfaction of CN, the Region and their tenants.

Project Co shall maintain continuous railroad operations at all times unless slow orders and track outages for work progress has prior approval from the Region, CN, Genesee and Wyoming formerly GEXR, and their customers and tenants, and agency having jurisdiction with an approved staging and phasing work plan with narrative, including any engineering seals, as required for temporary work.

Project Co shall coordinate, provide, and train all certified and experienced flaggers, supervisory staff, and watchmen lookout personnel for the duration of the Project including any recertification training required for all Project Co personnel and its subcontractors, Region, City, railroad, public and private Third Party Utility, and agencies having jurisdiction.

Project Co's schedule of activities shall be such that the Work progresses daily and weekly to meet the Project Agreement milestone completion.

(b) Waterloo Spur

Project Co is responsible for all costs, coordination, design, planning, phasing, sequencing, staging, construction and maintenance of the required work within the Waterloo Spur railroad corridor, including all Project Schedule predecessor and successor activities, work plans and narratives in a manner to accommodate, coordinate and provide without disruption of freight service for the Region and its tenants CN and Genesee and Wyoming formerly GEXR and their customers.

Project Co's work shall provide weekly, on Monday, Tuesday, Wednesday, and Thursday from 11:00 pm to 7:00 am, the Waterloo Spur railroad corridor in a functional stable and safe condition



to transport freight, including all temporary signals and crossing warning systems at all at-grade crossings along the Project alignment, and to allow for the passage of freight to and from the businesses located in Elmira/St. Jacobs, Ontario, Canada. To be clear, the start of freight service begins at 11:00 pm on Monday of each week.

Project Co shall coordinate daily the required freight service with the Region and its tenants CN and Genesee and Wyoming formerly GEXR and their customers on all phasing, sequencing, and staging of the work within the Waterloo Spur railroad corridor.

Project Co's work within the Waterloo Spur railroad corridor includes all temporary relocations and permanent railroad alignments including all signals and at-grade crossing warning systems.

Project Co's Project Schedule and work activities shall be such that the work progresses daily and weekly to meet the Project Agreement completion and milestone noted for the Waterloo Spur railroad corridor contained herein.

Project Co is not required to provide any railroad flagging for the Waterloo Spur work. This is based upon an understanding and agreement with CN and Genesee and Wyoming formerly GEXR. Project Co is responsible for providing and performing all flagging services and other safety related activities along the Waterloo Spur to protect its workers, Third Party contractors, works by others in conjunction with the Project, the public and the freight railroads. These services shall be included in Project Co's Construction Period Emergency Preparedness Plan and Construction/Testing Safety Plan and shall adhere to the requirements followed by freight railroads operation on rail lines owned by freight railroads as well as the requirements from all Authorities Having Jurisdiction in this matter. This protection shall also be provided during, including but not limited to, the performance of Project Co's Work; during the performance of work by Project Co and by others associated with any at-grade rail crossing; the performance of Project Co Work and Third Party contractors; temporary access means in the performance of the Work; during the performance of the Work during any active railroad operations; and during the performance of all vehicle acceptance testing including all 600km vehicle burn-in among other Project Agreement requirements not stated herein. The obligation to provide these protection services extends into the Operations, Maintenance and Rehabilitation periods.

(c) CN Guelph Subdivision – King Street Grade Separation

Project Co is responsible for all costs, coordination, design, planning, phasing, sequencing, staging, construction and maintenance of the required work within the CN Guelph Subdivision King Street Grade Separation corridor, including all Project Schedule predecessor and successor activities, work plans and narratives in a manner to accommodate, coordinate and provide without disruption of freight service to CN and Genesee and Wyoming formerly GEXR and their customers, and GO and VIA and their passengers. Project Co is not responsible for the cost of any temporary railroad track and special track work relocation and permanent railroad track and special track work with the exception of the scope of work noted and identified on the Appendix T Drawing. In addition, Project Co shall accommodate and coordinate all Huron Spur railroad work with the Allstream and Bell 360 required utility work within the corridor as a part of its Work.

Project Co's work shall provide daily passenger service, unless approved otherwise by the Region, CN, Genesee and Wyoming formerly GEXR and/or agency having jurisdiction, for the GO and VIA trains. Project Co shall, at a minimum, anticipate GO and VIA to have two (2) trips each eastbound and two (2) trips each westbound Monday to Friday. Further, Project Co shall, at a minimum, anticipate two (2) eastbound VIA trains and two (2) westbound VIA trains on Saturday and Sunday.

Project Co's work shall provide daily freight service, unless approved otherwise by the Region, CN, Genesee and Wyoming formerly GEXR and/or agency having jurisdiction, for CN and Genesee and Wyoming formerly GEXR and their customers. Project Co shall anticipate, at a minimum, four (4) freight movements eastbound and four (4) freight movements westbound daily seven (7) days a week.

Project Co shall coordinate daily with the Region, CN and Genesee and Wyoming formerly GEXR and their customers, and GO and VIA on all phasing, sequencing, and staging of the work within the Guelph Subdivision railroad corridor and King Street Grade Separation work.

Unless otherwise approved by the Region, Project Co shall not hinder or disrupt the railway operations of:

- (i) any of CN, Genesee and Wyoming (formerly GEXR), including any of their assignees or affiliates as applicable; or
- (ii) any other railway operator entitled to operate on the railway;

at any time during the applicable operating time frames provided to Project Co from time to time by any of CN, Genesee and Wyoming (formerly GEXR), including any of their assignees or affiliates as applicable, any other railway operator entitled to operate on the railway, or the relevant agency having jurisdiction. If any such disruption to railway operations exceeds 15 minutes and is caused by the action or inaction of Project Co or a Project Co Party, liquidated damages shall be payable by Project Co to the Region at a rate of \$171.30 (indexed linked based on the Operations Escalation Factor) for each fifteen minute interval of disruption, and any portion thereof ("**Freight Liquidated Damages**"), until railway operations resume to the satisfaction of the Region and CN.

Project Co's Project Schedule and work activities shall be such that the work progresses daily and weekly to meet the Project Agreement completion and milestone noted for the King Street Grade Separation contained herein.

- (iii) New and Relocated Tracks for the King Street Grade Separation

Attached in Schedule 15-2 Appendix X is the scope of work portion of the pending New and Relocated Tracks for the King Street Grade Separation Agreement between Canadian National Railway (CN), Goderich-Exeter Railway Company Limited (GEXR) and the Region for the work along the Guelph Subdivision. The pending agreement calls for the Region to provide new tracks and relocated existing tracks to accommodate the new grade separation at King Street. The work will be performed on tracks and land owned or controlled by the CN and GO Transit but this work also impacts GEXR, VIA and GO Transit train operations. Due to the need to keep the Huron Spur connection and GO Transit's Layover facilities viable during the construction of the

Grade Separation at King Street, construction sequencing and collaborative effort are required by Project Co. Project Co shall be responsible for the design, construction, and general oversight of the New and Relocated Tracks as described in Appendix X and as further described herein. Project Co shall not be responsible for maintaining the New and Relocated Tracks, the GO Transit Layover Facility or any structures supporting the New and Relocated Tracks after acceptance of the work by the CN. Project Co shall provide a two year warranty for all work performed by Project Co for the New and Relocated Tracks and shall include a two year warranty requirement in all contract documents for work to be performed by other contractors. With the exception of the time frame, the warranty provided by Project Co shall comply with all other warranty requirements cited in the Project Agreement.

Project Co shall refer to Schedule 15-2, Appendix X Schedule A for the New and Relocated Tracks for the King Street Grade Separation and shall comply with the following additional instructions:

Schedule A-1 - Project Co shall be responsible for the design of all elements related to the New and Relocated Tracks. The design work shall depict three basic implementation responsibilities. The first responsibility shown in the design shall be for work that Project Co shall perform, the second responsibility shall be for all trackwork related work which will be the responsibility of the CN to perform and the third responsibility shall be for all rearrangements to the GO Transit Layover Facility which will be the responsibility of GO Transit to implement. Project Co is not responsible for the construction cost of the trackwork components being provided by the CN or the construction cost of the rearrangement to the existing GO Transit Layover Facility.

The Design Package for the trackwork shall be prepared in a fashion so that the CN can bid this work. Project Co shall be responsible for preparing all technical specifications for the bid package, providing bid phase services to the CN and design support during the construction for the trackwork component. The CN will review and comment on all aspects of Project Co's Design Package. Project Co shall provide a 30% (Phase 1), 60%, 90% and 100% submission for the New and Relocated Tracks.

The Design Package for the GO Layover Facility shall be prepared in a fashion so that the GO Transit can bid this work. Project Co shall be responsible for preparing all technical specifications for the bid package, providing bid phase services to GO Transit and design support during the construction for the rearrangement work for the GO Transit Layover Facility. GO Transit will review and comment on all aspects of Project Co's Design Package. Project Co shall provide a 30% (Phase 1), 60%, 90% and 100% submission for the rearrangement work for the GO Transit Layover Facility.

Schedule A-1(a) – The Realignment Plans for the New and Relocated Tracks is included in the Appendix I of Schedule 15-2 as drawings (C-PP-401 to C-PP-411). The Right-of-Way boundaries shown on the Realignment Plans are generally fixed and Project Co's final design

documents shall not encroach beyond the finalized Right of Way limits. The civil design solutions shown on the Realignment Plans to reduce the Right of Way requirements within the Right-of-Way lines are the solutions that Project Co shall refine or modify to achieve equivalent same results when completing the final design documents for the New and Relocated Tracks.

Schedule A-1(b) – Project Co shall design the turnouts for the rearranged access and ladder track for the GO Transit Layover Facility using new number 12 turnouts.

Schedule A-1(c) – Project Co shall design and construct all encasements, protection, or relocation for all utility work required for the New and Relocated Tracks for the King Street Grade Separation.

Schedule A-1(d) – For the revised road crossings at Park Street and Duke Street, Project Co shall perform a safety assessment as per Transport Canada’s specifications. Also refer to Article 8 for additional crossing warning systems requirements. The safety assessment and all work defined in the acceptance of the safety assessment shall be completed prior to requesting that the CN and GEXR inspect the New and Relocated Tracks to determine that the New and Relocated Tracks can be placed into service. Project Co shall also support the Region, as needed, in matters related to the closure of Waterloo Street including providing barriers and other elements related to the street closure.

Schedule A-1(e) – Project Co’s design documents shall delineate the work for the Region’s Contractor (Project Co), the CN’s Contractor, and the GO Transit’s Contractor. Project Co may use one Design Package showing the work scope delineation or two or more Design Packages to achieve a proper delineation. The trackwork reserved for implementation by the CN includes the ballast, track materials, track removal, special trackwork for Huron Spur, crossovers and access to the GO layover tracks and rearranging of the GO layover tracks. The design for the new crossing warning systems will be a joint effort with the CN. The procurement, installation, and testing of the new crossing warning systems shall be a Project Co responsibility. The maintenance of the new crossing warning systems after acceptance is not a Project Co responsibility. The Design Package shall also provide detailed specifications and drawings depicting the sequence of construction for the New and Relocated Tracks and all other work for the King Street Grade Separation. The intent is to reuse as much of the existing track for the New and Relocated Tracks as possible and avoid disruptions to the CN, GEXR, GO Transit, and Via Trains. Project Co shall design, as part of the work scope for GO Transit’s Contractor, an equivalent replacement for the existing Security Fence for the GO Transit Layover tracks. Project Co has no other fencing responsibilities except for fall protection due to the King Street Grade Separation configuration. The GO fence will be located in a similar fashion as the existing fencing. Existing gates, if suitable, may be reused. If the existing gates do not fit into the new track configuration, Project Co shall require GO Transit’s Contractor to furnish and install new gates.

Schedule A-1(f) – Project Co shall perform the design for all structures, including the New Bridge over King Street, as per all CN design requirements. Project Co shall furnish prefinal design calculations with the 60% design submission and 100% design calculations with the 90% design submission.

Schedule A-1(g) – The running rail will be based on 115RE running rail, but Project Co shall reaffirm this requirement with the CN as part of the 30% design submission.

Schedule A-1(h) – Although the track grades shall not be significantly changed, vertical changes will be required during the design process to control Right-of-Way encroachment and to ensure that the roadway profiles at Park Street and Duke Street provide a smooth profile for rubber tire traffic. For proper drainage conditions, the trackway should not be the lowest element of the roadway profile.

Schedule A-1(i) – Project Co does not have any role in any future noise investigations.

Schedule A-1(j) – Project Co shall collaborate with CN, GEXR and GO Transit to determine what conduits may be required for their track and wayside equipment and include those conduits in their design package.

Schedule A-1(h) – Project Co, to prepare a design package, shall collaborate with GO Transit on the rearrangement of the GO Transit's Layover facility including fencing and parking requirements.

Schedule A-2 – Project Co shall determine the scope of geotechnical program and shall perform all geotechnical investigations for the New and Relocated Tracks as per the requirements of Article 2 and Article 2.5(c). Project Co shall perform an assessment of the existing soils as per the requirements of Article 4 and Article 4.14(f).

Schedule A-3 – Project Co shall design and construct all site grading and soil retention elements for the New and Relocated Tracks.

Schedule A-4 – Project Co shall design the trackbed to the most stringent requirements from CN, GEXR, GO Transit or Schedule 15-2 Article 11 requirements for freight railroad trackwork.

Schedule A-5 – The source of the trackwork components needed for the construction of the New and Relocated Tracks shall be included in the design documents prepared by Project Co for trackwork. The source of these components will be a combination of; reusing of existing track components, using of relay or new track materials provided to the CN's Contractor for the New and Relocated Tracks by others, or the purchasing by the CN's Contractor of specific track components. Project Co shall, with the CN and GO Transit, perform an inventory of the condition of the existing track components prior to the Phase 1 submission. As a result of this inventory, the Region and the CN and GO Transit will advise Project Co of their direction with respect to the source of existing track components for the trackwork component of the New and

Relocated Tracks. Project Co shall not be responsible for ordering, transporting, or supplying trackwork components to be used in the construction of the New and Relocated Tracks.

Schedule A-6 – Project Co shall be responsible for the design and construction of all drainage ditches and underground drainage systems for the New and Relocated Tracks.

Schedule A-7 – Project Co is not only responsible for the design and construction of any utility encasement, Project Co is also responsible for meeting and coordinating with the specific utility to meet their encasement requirements.

Schedule A-8 – Project Co shall construct the road crossings of the tracks and position all crossing warning systems as per the safety assessment and shall be responsible for the procurement and installation of the road crossing materials to be installed on track work constructed by the CN's Contractor. The entire roadway surface and surrounding site improvements before, through and after each of the freight railroad crossing, including restriping and remedial landscaping, is a Project Co responsibility.

Schedule A-9 – This section of the agreement is not applicable to the work program for New and Relocated Tracks for the King Street Grade Separation.

Schedule A-10 – Project Co shall identify in the design documents that the CN's Contractor shall be responsible for the removal of all track components from the existing track and their disposal or reuse in the construction of the New and Relocated Tracks. All surplus existing track materials shall be processed by the CN's Contractor as required by the CN and identified in the design documents prepared by Project Co. Project Co shall also identify in the design documents any work that will be self performed by GO Transit and work that will be performed by GO Transit's Contractor.

Schedule A-11 – Project Co shall prepare site restoration design documents for the CN lands impacted by the work and shall implement the work for restoring the vegetation and the disturbed area using approved seed and following the requirements Article 2 and section 2.14 (b).

Schedule A-12 – Project Co shall provide all highway flagging and maintenance of traffic actions for work performed by Project Co, third parties, work performed by the CN or the CN's Contractor as well as work performed by GO Transit and work that will be performed by GO Transit's Contractor.

Schedule A-13 – Project Co shall incorporate all work related to the New and Relocated Tracks and rearrangement of GO Transit's layover tracks into its overall management systems and its monthly reporting processes for the Stage 1 LRT Project.

Schedule A-14 – When requested by the Region, Project Co shall attend GEXR and GO Transit meetings.

Schedule A-15 – When requested by the Region, Project Co shall attend other regularly established meetings.

Schedule A-16 – Project Co shall manage its work and provide oversight services to the Region for all the work needed for the New and Relocated Tracks and rearrangement of GO Transit's layover tracks including the work performed by Third Parties, performed by the CN and CN's Contractor as well as the work performed by GO Transit and work that will be performed by GO Transit's Contractor.

Schedule A-17 – Project Co shall support the Region in any collaborative effort needed to progress the work. This collaboration includes, but is not limited to, working with the Region, Third Parties, CN, GEXR and GO Transit to develop the design documents needed to rearrange the GO Transit's layover tracks. The collaborative effort includes Project Co's participation in all inspection and acceptance activities related to the trackwork components and the rearrangement of GO Transit's layover tracks. In addition, to ensure that all work performed by Project Co, the CN, GO Transit or their Contractors is properly coordinated in the field, Project Co shall provide all survey related services for all work elements needed for the New and Relocated Tracks work program. Project Co shall also prepare all record drawings and documents for all work elements of the New and Relocated Tracks work program.

Schedule A-18 – Project Co's role with respect to legal, regulatory, and environmental activities is the same for the area involving the New and Relocated Tracks as it is for the Stage 1 LRT project or described herein.

Schedule A-19 – Project Co shall prepare design documents for the relocation or protection of utilities.

Schedule A-20 – The cost of disposing of cross ties unfit for service is not a Project Co cost. This cost will be handled by the Region.

Schedule A- 21 - Project Co shall design and construct all work for the New and Relocated Tracks to allow freight railroad and commuter rail train operations to continue uninterrupted unless otherwise agreed to by the CN and GEXR for track cutovers to the New and Relocated Tracks or the rearrangement of the GO Transit tracks. Project Co shall include these requirements in the design documents for the work to be performed by the CN's Contractor and GO Transit's Contractor.

Project Co shall refer to Schedule 15-2, Appendix X Schedule B for the New and Relocated Tracks for the King Street Grade Separation and shall comply with the following additional instructions:

Schedule B-1 – The Region will directly pay for all flagging services provided by the CN and GEXR. Project Co shall perform its work in a manner which reduces the cost of flagging. This

includes erecting barricades which separate Project Co from freight railroad traffic so that flagging is not required, performing work during predetermined hours agreed to by the GEXR that do not require flagging or hours allowed GEXR that the work can proceed using self protection processes provided by Project Co. The Right-of-Way fence can serve as an effective barrier to reduce flagging, however, the Right-of Way fence cannot be installed in a fashion or time frame that inhibits the work of the CN's Contractor including the work of removing the existing track or the Bell 360 Network's Contractor. However, the CN and the GEXR are the sole entities that determine what activities must be protected by flagging and Project Co shall adhere to CN and GEXR requirements with respect to track fouling and flagging.

Schedule Sections B-2 through B15 – Project Co shall prepare the design documents and implement the Work in accordance with these sections of the agreement and as instructed herein. Note the warranty period for Project Co's work is two years for the work related to the New and Relocated Tracks.

(d) Guelph Subdivision – CN Huron Spur

Project Co is responsible for all costs, coordination, design, planning, phasing, sequencing, staging, construction and maintenance of the required work within the Guelph Subdivision CN Huron Spur, including all Project Schedule predecessor and successor activities, work plans and narratives in a manner to accommodate, coordinate and provide without disruption of freight service to CN and Genesee and Wyoming formerly GEXR and their customers. In addition, Project Co shall accommodate and coordinate all Huron Spur railroad work with the Bell 360 required utility work within the corridor as a part of its Work.

Project Co is advised of the requirement to coordinate, phase, sequence and stage its Work within this corridor with that of the ongoing negotiations and cooperation between the Region and MTO pertaining to the Provincial 7/8 Highway Conestoga Flyover structure and appurtenances.

Project Co's work shall provide daily freight service, seven (7) days a week, unless otherwise notified by the Region, CN, Genesee and Wyoming formerly GEXR and/or agency having jurisdiction, for CN and Genesee and Wyoming formerly GEXR and their customers. Project Co shall, at a minimum, anticipate no less than two to no more than four daily movements during daylight operating hours.

Project Co shall anticipate, a daily downtime, subject to change, around 1600 hours (4:00 pm) for connection to Toronto traffic.

Project Co shall anticipate additional rail movements when all three shifts are in play at the Toyota Plant.

Project Co shall coordinate daily with the Region, CN and Genesee and Wyoming formerly GEXR and their customers on all phasing, sequencing, and staging of the work within the Guelph Subdivision CN Huron Spur corridor.

Unless otherwise approved by the Region, Project Co shall not hinder or disrupt the railway operations of:



- (i) any of CN, Genesee and Wyoming (formerly GEXR), including any of their assignees or affiliates as applicable; or
- (ii) any other railway operator entitled to operate on the railway;

at any time during the applicable operating time frames provided to Project Co from time to time by any of CN, Genesee and Wyoming (formerly GEXR), including any of their assignees or affiliates as applicable, any other railway operator entitled to operate on the railway, or the relevant agency having jurisdiction. If any such disruption to railway operations exceeds 15 minutes and is caused by the action or inaction of Project Co or a Project Co Party, liquidated damages shall be payable by Project Co to the Region at a rate of \$171.30 (indexed linked based on the Operations Escalation Factor) for each fifteen minute interval of disruption, and any portion thereof (“**Freight Liquidated Damages**”), until railway operations resume to the satisfaction of the Region and CN.

Project Co’s work within the CN Huron Spur includes all temporary relocations and permanent railroad alignments including all signals and at-grade crossing warning systems.

Project Co’s Project Schedule and work activities shall be such that the work progresses daily and weekly to meet the Project Agreement completion and milestone noted for the CN Huron Spur contained herein.

- (iii) Replacement Track for Huron Spur

Attached in Schedule 15-2 Appendix X is the scope of work portion of the pending Rail Relocation Agreement between Canadian National Railway (CN), Goderich-Exeter Railway Company Limited (GEXR) and the Region for the work along the Huron Spur. The pending agreement calls for the Region to replace the existing track with a new track approximately 28 to 30 feet offset from the existing track. The new track is referred to as the Replacement Track. The land being retained by the CN is referred to as Retained Lands which will contain the portions of the existing track that remain in place and the Replacement Track. Due to the need to reuse the existing underpass of the Conestoga Parkway, the Replacement Track will have to rejoin with the existing track on both sides of the underpass as well as at the initial point of divergence and at the yard south of Hayward Avenue. Project Co shall be responsible for the design, construction, and general oversight of the Replacement Track as described in Appendix X and as further described herein. Project Co shall not be responsible for maintaining the Replacement Track or any structures supporting the Replacement Track. Project Co shall provide a two year warranty for all work performed by Project Co for the Replacement Track and shall include a two year warranty requirement in all contract documents for work to be performed by other contractors. With the exception of the time frame, the warranty provided by Project Co shall comply with all other warranty requirements cited in the Project Agreement.

Project Co shall refer to Schedule 15-2, Appendix X Schedule A for the Huron Spur and shall comply with the following additional instructions:

Schedule A-1 - Project Co shall be responsible for the design of all elements related to the Replacement Track. The design work shall depict three basic implementation responsibilities. The first responsibility shown in the design shall be for work that Project Co shall perform, the second responsibility shall be for all trackwork related work which will be the responsibility of the CN to perform and the third responsibility shall be for all fibre optic relocation related work which will be the responsibility of the Bell 360 Network to perform. Project Co is not responsible for the construction cost of the trackwork components being provided by the CN or the construction cost of the relocation of the Bell 360 Network.

The Design Package for the trackwork shall be prepared in a fashion so that the CN can bid this work. Project Co shall be responsible for preparing all technical specifications for the bid package, providing bid phase services to the CN and design support during the construction for the trackwork component. The CN will review and comment on all aspects of Project Co's design package. Project Co shall provide a 30% (Phase 1), 60%, 90% and 100% submission for the Replacement Track. The design package shall also depict the LRT tracks but those components do not have to follow the same level of design development.

The Design Package for the fibre optic relocation shall be prepared in a fashion so that the Bell 360 Network can bid this work. Project Co shall be responsible for preparing all technical specifications for the bid package, providing bid phase services to the Bell 360 Network and design support during the construction for the fibre optic relocation work. The Bell 360 Network will review and comment on all aspects of Project Co's design package. Project Co shall provide a 30% (Phase 1), 60%, 90% and 100% submission for the fibre optic relocation. The design package shall also depict the LRT tracks but those components do not have to follow the same level of design development.

Schedule A-1(a) – The Realignment Plans for the Replacement Track are included in the Appendix T of Schedule 15-2 as drawings (C-HS-01 to C-HS-16). The Right-of-Way boundaries shown on the Realignment Plan are generally fixed and Project Co's final design documents shall not encroach beyond the finalized right of way limits. The civil design solutions shown on the Realignment Plans to reduce the right of way requirements within the Right-of-Way lines are the solutions that Project Co shall refine or modify to achieve equivalent same results when completing the final design documents for the Replacement Track.

Schedule A-1(b) – Project Co shall design and construct all utility encasements required for the Replacement Track.

Schedule A-1(c) – For the revised road crossings at Mill Street, Ottawa Street, and at Hayward Avenue, Project Co shall perform a safety assessment as per Transport Canada's specifications. Also refer to Article 8 for additional crossing warning systems requirements. In addition to the freight railroad train movements, the LRT train movements at each location shall be incorporated into the safety assessment as if they were commuter railroad trains. The safety assessment and all

work defined in the acceptance of the safety assessment shall be completed prior to requesting that the CN and GEXR inspect the Replacement Track to determine that the Replacement Tracks can be placed into service.

Schedule A-1(d) – Project Co’s design documents shall delineate the work for the Region’s Contractor (Project Co), the CN’s Contractor, and the Bell 360 Network’s Contractor. Project Co may use one design package showing the work scope delineation or two or more design packages to achieve a proper delineation. The trackwork reserved for implementation by the CN includes the ballast, track materials, track removal, special trackwork for industry side track, and rearranging of the yard ladder tracks. The design for the new crossing warning systems will be a joint effort with the CN. The procurement, installation, and testing of the new crossing warning systems shall be a Project Co responsibility. The design package shall also provide a detailed specifications and drawings depicting the sequence of construction for the Replacement Track including the trackwork component of the design and the relocation of the fibre optic line. The intent is to reuse as much of the existing track for the Replacement Track as possible and avoid disruptions to the fibre optic network. The sequence of construction shall include a phasing of the work so that the CN contractor can remove the existing tracks relocated north of the Conestoga Parkway for reuse south of the Conestoga Parkway to the maximum extent practical and the new bridge shall be completed to support the relocation of the fibre optic network.

Schedule A-1(e) – Project Co shall perform the design for all structures, including the New Bridge over Schneider Creek, as per all CN design requirements. Project Co shall furnish prefinal design calculations with the 60% design submission and 100% design calculations with the 90% design submission.

Schedule A-1(f) – The running rail will be based on 115RE running rail, but Project Co shall reaffirm this requirement with the CN as part of the 30% design submission.

Schedule A-1(g) – Although the track grades shall not be significantly changed, vertical changes will be required during the design process to control Right-of-Way encroachment and to ensure that the roadway profiles at Mill Street, Ottawa Street, and Hayward Avenue provide a smooth profile for rubber tire traffic. For proper drainage conditions, the trackway should not be the lowest element of the roadway profile.

Schedule A-1(h) - The Region presented two options for the yard entrance and the selected configuration is shown on the Realignment Plans. Project Co shall adhere to the solutions shown on the Realignment Plans and the Right-of-Way plans shall not be impacted by any design refinements.

Schedule A-1(i) – Project Co does not have any role in any future noise investigations.

Schedule A-2 – Project Co shall determine the scope of geotechnical program and shall perform all geotechnical investigations for the Replacement Track as per the requirements of Article 2 and

Article 2.5(c). Project Co shall perform an assessment of the existing soils as per the requirements of Article 4 and Article 4.14(f).

Schedule A-3 – Project Co shall design and construct all site grading and soil retention elements for the Replacement Track.

Schedule A-4 – Project Co shall design the trackbed to the most stringent requirements from CN, GEXR, or Schedule 15-2 Article 11 requirements for freight railroad trackwork.

Schedule A-5 – The source of the trackwork components needed for the construction of the Replacement Track shall be included in the design documents prepared by Project Co for trackwork. The source of these components will be a combination of; reusing of existing track components, using of relay or new track materials provided to the CN's Contractor for the Replacement Track by others, or the purchasing by the CN's Contractor of specific track components. Project Co shall, with the CN, perform an inventory of the condition of the existing track components prior to the Phase 1 submission. As a result of this inventory, the Region and the CN will advise Project Co of their direction with respect to the source of existing track components for the trackwork component of the Replacement Track. Project Co shall not be responsible for ordering, transporting, or supplying trackwork components to be used in the construction of the Replacement Track.

Schedule A-6 – Project Co shall be responsible for the design and construction of all drainage ditches and underground drainage systems for the Replacement Track. In situations where the underground drainage systems continue from the Retained Lands into the land owned or controlled by the Region, Project Co is responsible for maintaining that portion of the underground drainage systems.

Schedule A-7 – Project Co is not only responsible for the design and construction of any utility encasement, Project Co is also responsible for meeting and coordinating with the specific utility to meet their encasement requirements.

Schedule A-8 – Project Co shall construct the road crossings of the tracks and position all crossing warning systems as per the safety assessment and shall be responsible for the procurement and installation of the road crossing materials to be installed on track work constructed by the CN's contractor. The entire roadway surface and surrounding site improvements before, through and after each of the freight railroad and LRT track crossing, including restriping and remedial landscaping, is a Project Co responsibility.

Schedule A-9 – Project Co shall design and install the 6 foot high Right-of-Way fence on both sides of the CN Retained Lands for the Replacement Track or the existing track from the transition point north of Borden Avenue up to Hayward Avenue. Project Co has no fencing responsibilities south of Hayward Avenue. The fence will be located along the property line of the Retained Lands where feasible or as determined by the CN where other factors indicate a

different configuration. Gates, with a 12 foot opening, shall be provided on both sides of the Replacement Track at Overland Drive.

Schedule A-10 – Project Co shall remove the existing bridge structure at Schneider Creek. Reuse of any component of the existing bridge is not permitted. Project Co shall jointly perform a field inspection of the existing bridge over Schneider Creek and if requested by the CN, Project Co shall salvage any of the existing bridge materials return those materials to the CN and stockpile the materials in the yard area south of Hayward Avenue.

Schedule A-11 – Project Co shall identify in the design documents that the CN’s Contractor shall be responsible for the removal of all track components from the existing track and their disposal or reuse in the construction of the Replacement Track. All surplus existing track materials shall be processed by the CN’s contractor as required by the CN and identified in the design documents prepared by Project Co. Project Co shall also identify in the design documents any work that will be self performed by Bell 360 Network and work that will be performed by Bell 360 Network’s Contractor.

Schedule A-12 – Project Co shall prepare site restoration design documents for the CN retained lands and shall implement the work for restoring the vegetation and the disturbed area using approved seed and following the requirements Article 2 and section 2.14 (b).

Schedule A-13 – Project Co shall provide all highway flagging and maintenance of traffic actions for work performed by Project Co and work performed by the CN or the CN’s Contractor as well as work performed by Bell 360 Network and Bell 360 Network’s Contractor.

Schedule A-14 – Project Co shall incorporate all work related to the Replacement Track and relocation of the fibre optic network into its overall management systems and its monthly reporting processes for the Stage 1 LRT Project.

Schedule A-15 – When requested by the Region, Project Co shall attend GEXR and Bell 360 Network meetings.

Schedule A-16 – When requested by the Region, Project Co shall attend other regularly established meetings.

Schedule A-17 – Project Co shall manage its work and provide oversight services to the Region for all the work needed for the Replacement Track and the relocation of the fibre optic network including the work performed by the CN and CN’s contractor as well as the work performed by Bell 360 Network and Bell 360 Network’s Contractor.

Schedule A-18 – Project Co shall support the Region in any collaborative effort needed to progress the work. This collaborative includes, but is not limited to, working with the Region and Bell 360 Network to develop the design documents needed to relocate the Bell 360 Network fibre optic line into the CN’s Retained Lands. The collaborative effort includes Project Co’s

participation in all inspection and acceptance activities related to the trackwork components and the fibre optic relocation. In addition, to ensure that all work performed by Project Co, the CN, Bell 360 network or their Contractors is properly coordinated in the field, Project Co shall provide all survey related services for all work elements needed for the Replacement Track work program. Project Co shall also prepare all record drawings and documents for all work elements of the Replacement Track work program. Project Co shall design and construct all work for the Replacement Track to allow freight railroad train operations to continue uninterrupted unless otherwise agreed to by the CN and GEXR for track cutovers to the new Replacement Track or the rearrangement of the yard ladder tracks. Project Co shall include these requirements in the design documents for the work to be performed by the CN's Contractor and Bell 360 Network's Contractor.

Schedule A-19 – Project Co is responsible for all work involved in this section.

Schedule A-20 – Project Co's role with respect to legal, regulatory, and environmental activities is the same for the area involving the Replacement Track as it is for the Stage 1 LRT project or described herein.

Schedule A-21 – Project Co shall prepared design documents for the relocation of the Bell 360 Network fibre optic to CN lands in collaboration with Bell 360 Network and the CN. The construction cost for the relocation of the Bell 360 Network fibre optic network is not a Project Co cost accept for the design and support work defined herein. The Region will implement the relocation of the Bell 360 Network based on the existing railroad agreement with Bell 360 Network. Project Co shall be responsible for coordinating the work of the Bell 360 Network's Contractor into the design documents and into the overall project schedule. Project Co shall provide highway flagging for the Bell 360 Network's Contractor.

Schedule A-22 – The cost of disposing of cross ties unfit for service is not a Project Co cost. This cost will be handled by the Region.

Project Co shall refer to Appendix X Schedule B for the Huron Spur and shall comply with the following additional instructions:

Schedule B-1 – The Region will directly pay for all flagging services provided by the CN and GEXR. Project Co shall perform its work in a manner which reduces the cost of flagging. This includes erecting barricades which separate Project Co from freight railroad traffic so that flagging is not required, performing work during predetermined hours agreed to by the GEXR that do not require flagging or hours allowed GEXR that the work can proceed using self protection processes provided by Project Co. The Right-of-Way fence can serve as an effective barrier to reduce flagging, however, the Right-of Way fence cannot be installed in a fashion or time frame that inhibits the work of the CN's Contractor including the work of removing the existing track or the Bell 360 Network's Contractor. However, the CN and the GEXR are the

sole entities that determine what activities must be protected by flagging and Project Co shall adhere to CN and GEXR requirements with respect to track fouling and flagging.

Schedule Sections B-2 through B16 – Project Co shall prepare the design documents and implement the Work in accordance with these sections of the agreement and as instructed herein. Note the warranty period for Project Co’s work is two years for the work related to the Replacement Track.

**18.11 Air and Dust Monitoring and Control**

- (a) Project Co shall prepare a comprehensive Dust Control and Air Monitoring Program. Project Co shall not perform any construction Work activities until the Program has been approved by the Region and agency having jurisdiction. Project Co shall provide sufficient time in its Project Schedule for each agency having jurisdiction to review and comment on the Program. Sufficient time shall be provided in the Project Schedule for this process to occur. However, not less than forty-five (45) calendar days shall be considered in the Project Schedule for each work activity affected if a time frame cannot be obtained from the governing or agency having jurisdiction.
- (b) The Program and individualized plans shall identify all fugitive dust sources on the Project Site and describe in detail all dust control measures and protocols to be implemented prior to, during, and after any dust generating activities for the duration of the Project. The Program and individualized plans shall address Project Co’s approach to the work activity, the equipment used during the work activity, the equipment used to control the dust, the duration of the predecessor work activity and successor work activity in controlling dust and its accumulation on the Project Site. Drawings and technical data shall accompany the Program and individualized plans to fully support Project Co’s Program. Fugitive dust, its sources, its accumulation, and its migration shall be controlled at all times by Project Co. Dust generated by Project Co’s activities shall not be allowed to be wind-blown and airborne. Wind-blown or airborne fugitive dust shall be addressed immediately and mitigated accordingly. Work causing fugitive dust shall be suspended until the fugitive dust has been controlled. Damages to adjacent properties, businesses and other establishments and property shall be addressed immediately to the satisfaction of the property owner, business, City authorities and Region.
- (c) All applicable Federal, Provincial, Regional, and City by-laws, codes, laws, ordinances, statutes, and regulations shall be met. The Program and individualized plans shall be made available at all times for inspection and be kept current for the duration of the Project. The Program and individualized plans shall be amended, as applicable. All revisions shall be submitted for approval to the agency with authority for approval prior to proceeding with the amended Program and/or individualized plan and Region.
- (d) Project Co shall comply with all Federal, Provincial, Region and City air quality by-laws, and codes to limit adverse affects on air quality from the Work including but not limited to demolition, clearing, and construction activities, as well as from construction vehicles and equipment. Compliance measures shall include the following:
  - (i) Water or suitable chemicals shall be used continuously to control dust in all activities. If approved for use by the Federal, Provincial, Region and City’s calcium chloride is an option for consideration.
  - (ii) Project Co shall remove and dispose of scrap and waste material in a lawful manner. Project Co shall remove and dispose of such material on a daily basis. The burning of

- waste is prohibited. Project Co shall ensure a source separated waste reduction program is implemented; to ensure recyclable materials are removed from the waste stream.
- (iii) Trucks leaving the construction site and entering paved public streets shall be cleaned of mud and dirt. Trucks arriving at and leaving the site shall not deposit materials or debris on any street. Project Co shall maintain a suitable vehicle-cleaning and inspection installation with a permanent crew for this purpose at all locations at all times during the Work. Spills of materials in public areas shall be removed immediately. Open-body trucks for transporting materials shall be covered at all times when in motion.
  - (iv) Waterborne sand or synthetic sand-blasting material shall be used in sand-blasting materials operations, to avoid sand fracture dust.
  - (v) Project Co shall use construction equipment designed and equipped to prevent or control air pollution in conformance with EPR, the regulations of the MOE, Region, and local authorities. Evidence of such design and equipment shall be maintained and made available for inspection by the Region and/or governing authority.
  - (vi) Project Co shall establish and maintain records of the routine maintenance program for internal-combustion-engine-powered vehicles and equipment used on the Project. These records shall be made available for inspection by the Region and/or governing authority.
  - (vii) Idling of delivery trucks and other construction equipment shall comply with the EPR for emissions compliance, MOE regulations, by-laws, codes, and relevant standards. Idling of delivery trucks or other equipment will not be permitted during periods of unloading or other non-use. Project Co's Traffic Management Plan (TMP) and individualized Traffic Control Plans (TCPs) shall indicate how compliance with air quality regulations, the EPR, and other environmental rules will be implemented in order to minimize traffic congestion and reduce the idling time of vehicles.
  - (viii) Project Co shall remove or stabilize all loose surface material immediately.

#### **18.12 Dewatering**

- (a) A Dewatering Plan shall be prepared and approved in advance for each anticipated work activity requiring a need for its implementation and be available for review upon request by the Region at all times. The Dewatering Plan shall provide the protocols and procedures to be implemented, when required, to facilitate the progression of the Work while remaining compliant at all times. Any change implemented by Project Co, as conditions warrant, to the approved Dewatering Plan shall be revised and submitted to the Region and agencies having jurisdiction to maintain regulatory compliance. The dewatering system shall be effective in reducing the hydrostatic pressure and lower the groundwater levels below the base of the excavation to permit work on a stable and substantially dry sub-grade. Project Co shall comply with the latest edition of the Ontario Ministry of Environment Manual for a Permit To Take Water (PTTW), obtain, hold current for the duration of the Project, as required, and made available upon request by the Region. Project Co shall comply with all MOE requirements, Region by-laws, and other relevant rules not stated herein. The Dewatering Plan shall address the sampling and testing of all water discharge for each work activity for compliance to water quality standards. Non-complaint dewatering discharge and/or contaminated dewatering discharge shall not be discharged into any stormwater system, watershed, surface, or the excavation. Project Co shall be responsible for all contaminated dewatering discharge cost, disposal, and treatment, in accordance with all applicable by-laws, codes, regulations and standards.



- (b) Measures shall be taken to limit the migration of any contaminant plume, and the dewatering operations shall be monitored, tested, and logged at all times to confirm and comply with the PTTW, EPR, GRCA, DFO, and Project Agreement, including but not limited to the following:
  - (i) Soil particles are not being removed by the System.
  - (ii) No movement is caused in adjacent areas.
  - (iii) No damage is caused to properties, buildings, structures, sewers and other utilities, or pavements.
  - (iv) Discharge shall be controlled, sampled and tested routinely, and comply with all applicable permits, by-laws, codes, and other rules.
  - (v) Contamination shall be controlled and disposed of properly, if any. All governing authorities shall be notified immediately in the event contamination occurs.

### **18.13 Storm Water Management and Sedimentation Control**

- (a) Project Co shall prepare and update as conditions change its Erosion and Sedimentation Control Plan for the Work. Project Co shall comply with all ECA, GRCA, DFO, MOE, Region, Project Agreement and Project Agreement Environmental Project Report requirements. The plan shall be initiated prior to any construction being performed. Project Co shall prior to, during construction, prevent siltation of any affected channels, wetlands, streams, or storm sewer systems. Any sedimentation occurring during construction, i.e. rain, snow, dewatering, or other environmental or Project causes, shall be removed, and the channel, wetlands, stream, or storm sewer outfall shall be restored to its pre-construction and required design condition. All work shall be in accordance with the Federal, Provincial, Region and City guidelines and regulations. Erosion and sedimentation control measures (e.g., rock construction entrances, silt fences, vegetation cover, and hay bales, mud control, spray areas) shall be implemented to minimize exposure during rain events. At wetlands sites, efforts to minimize impacts from soil erosion may include silt fencing at toe-of-slope of disturbed areas and soil stockpiles; mulching; grass seeding; and hay bales used to form sediment barriers.

Project Co shall prepare and provide design and construction plans with narratives, and update as required, to the Region and agency having jurisdiction of all Project Co borrow sites, regardless of material type, it intends to utilize for any reason on the Project whether for backfill, embankment and landscape including all material testing for its intended purpose.

- (b) No mud, dust, debris, and contamination of any kind shall be allowed to be deposited, accumulate, and enter on to roads, sidewalks, multi-use trails, and boulevards. Project Co shall immediately and at the end of each work day remove all mud and debris of any kind from its work activities, without exception, including detour routes, driveways, sidewalks, multi-use trails, parking, truck routes, and adjoining intersecting streets along the alignment.

- (i) **Water Quality**

Project Co shall treat wastewater from storm runoff, equipment washing, or any other action of Project Co's operations, to remove suspended particles and hydrocarbons through settling basins or hydrocarbon separators, i.e. oil/grit separator. The design of soil erosion and sedimentation control measures that use infiltration systems shall include methods to minimize potential impacts to groundwater resources. The more restrictive criteria for solids in the water set by Federal, Provincial, Region, and City water agencies shall apply. Project Co shall not allow runoff water to be polluted. Project Co shall monitor discharge to ascertain it meets standards set by appropriate by-laws, codes,

regulations, ordinances, and permits. Records of measurements shall be retained for inspection by the Region and/or governing authority.

Project Co shall not discharge pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage, or other harmful wastes into or alongside streams and impoundments, channels leading thereto, or the ground. Project Co shall control the use of lubricating oils, hydraulic fluids, greases, and other such products. Project Co shall promptly clean up and properly dispose of materials contaminated by spillage or leakage of these products. Spills or leaks shall be cleaned up immediately by removal of free-product contaminated soil.

No waste or erosion materials shall be allowed to enter natural or manmade water or sewage removal systems. Erosion materials from excavations, borrow areas, or stockpiled fill shall be contained within the work area. Project Co shall develop methods to control waste and erosion, including such means as filtration, settlement, and manual removal. Mitigation measures to minimize infiltration of soil contaminants exposed during excavation, or those introduced from accidental spills during construction, shall be implemented to protect aquifers. Mitigation measures shall include limiting mechanical repairs and storage of fuels, oils and cleaning agents to contained areas on paved areas.

Project Co shall prepare and update as conditions change the necessary documents and obtain from the ECA, MOE, MNR, GRCA, DFO, Region and/or City (Drinking Water License), or other relevant agencies the applicable approvals and permits and/or other necessary approvals and permits from all agencies having jurisdiction for water discharge, where required. Project Co shall comply with the Transportation of Dangerous Goods Act and the Waste Diversion Act during the disposal and handling of all contaminated materials.

#### **18.14 Historical and Scientific Specimens**

- (a) Articles of historical or scientific value such as coins, fossils, or articles of antiquity uncovered during the progress of the Work shall become the property of the Region or agency having jurisdiction over the facility. Such finds shall be reported immediately to the Region, which shall determine the appropriate next steps (which may include stoppage of work with in the area of the discovery) regarding the method of removal or disposition. Project Co's construction activities shall not adversely impact existing historical and archeological resources, and particular care shall be taken with regard to historically significant and/or heritage designated buildings.

If human remains or artifacts associated with human remains are encountered by Project Co during construction, all work activities at the discovery site and in the immediate area of the discovery shall cease immediately. Project Co shall contact the local police and coroner. In addition, Project Co shall contact the Ministry of Culture, and the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Business Services. Appropriate procedures for dealing with the human remains will be determined by these organizations.

If any other archaeological resources are encountered during the Work, all activity shall cease and the Ministry of Culture contacted immediately. In most cases, additional investigation and reporting of the cultural deposits will be required to be undertaken by a provincially licensed archaeologist at the expense of Project Co.

- (b) Project Co shall review the EPR and satisfies itself sufficient information exists within the EPR as well as other available documents at its disposal with respect to the potential identification of historical and scientific locations along the Projects alignment. Project Co shall determine from this information whether an archaeological assessment should be performed prior to any

construction activity. Project Co shall include time including all activities associated with its approach to this matter within its Project Schedule. The Work shall be planned and scheduled by Project Co so as not to impact the Project Agreement Milestones. The Project Co shall notify the Region of any discoveries found during its pre-construction investigation of historical and scientific evidence prior to proceeding with construction.

**18.15 Noise and Vibration Monitoring and Control**

- (a) Project Co shall provide a comprehensive Project wide Noise Control Plan. The Noise Control Plan shall be approved prior to commencement of any construction activities. Noise levels generated by Project Co's activities shall not exceed the more restrictive allowable noise levels specified by the EPR and applicable Federal, Provincial, Regional, and local by-laws, codes, ordinances, statutes, and regulations, as well as additional Municipal/City noise control requirements. Project Co is responsible for obtaining all noise variances and/or relief from any by-laws in advance of any construction activities. Sound suppression devices shall be provided on all equipment and tools to maintain noise exposures at or below the allowable levels. Project Co shall utilize and implement noise mitigation equipment and measures such as barriers, fencing, noise absorptive materials, or other means in meeting noise level requirements. All engine exhaust systems shall be in good working condition, and include properly designed and maintained engine enclosure and intake silencers at all times. Stationary equipment shall be placed as far as possible from noise-sensitive receptors. Disposal sites and haul routes shall be appropriately selected and planned in advanced to minimize noise and vibration. The Work shall be planned and scheduled by Project Co so as not to impact the Project Agreement Milestones.
- (b) Project Co shall provide for the control of vibration during construction. The International Organization for Standardization (ISO) and the Canadian Standards Association (CSA) have developed criteria for assessing human sensitivity to vibration, as required by the Project Agreement, by-laws, codes, ordinances, regulations, and statutes. Project Co shall limit peak particle velocities to the more restrictive maximum allowable values in accordance with the Project Agreement, by-laws, ordinances, regulations, statutes, and standards.
- (c) Project Co shall provide a comprehensive Project wide Vibration Control Program. The Program shall comply with the Project Agreement, the Project Agreement's Environmental Project Report, Region, City and MOE by-laws, codes, ordinances, statutes, and regulations. It shall include individualized prepared plans. Each individualized plan for each work activity with the potential to cause vibration impacts to occupants of adjacent and adjoining structures and buildings shall be prepared, approved as required, available and provided upon request by the Region. The Program and individualized plans shall assess the potential vibration impacts to structures and occupants of buildings to included but not limited to a detailed drawing or drawings including a narrative on the proposed construction methods, the specific construction activity, the types of construction equipment to be used on the Project and at the specific construction area, the characteristics of soils in the area, and the existing condition and use of the structures and buildings. Project Co shall assess each construction activity and impacted area to ascertain the applicable vibration criteria. Project Co shall be responsible for the design, procurement, installation, maintenance, and protection of the proposed vibration monitoring system. The instrumentation program shall be submitted to the Region for review and comment. The Program shall also include procedures to be followed when measurements reach applicable industry specified threshold values or when the construction activity changes. The Program shall address the removal of all instrumentation means and measures as well as the repair of structures and/or facilities and their elements damaged by construction instrumentation and vibration activities. The Work shall be planned and scheduled by Project Co so as not to impact the Project Agreement Milestones.

## 18.16 Waste Management

### (a) Disposal and Salvage of Materials

- (i) Project Co shall prepare and maintain a Project wide and Project specific Disposal Plan for the responsible disposal of all debris, excess excavation, recyclable material, residual waste, trash, waste, unsuitable material and backfill, including but not limited to paving material, rock, rock excavation, glacial till, building debris and building foundations, removed utility materials, old trolley track bed, brick and cobbles, old railroad ties, and other materials encountered during construction. Excess material shall not be permitted to accumulate along the Project alignment at any time. Project Co shall plan and stage the Work to enable the daily removal of these materials from the Project and not intended for reuse within the Project as suitable and acceptable quality backfill or embankment immediately. The disposal of all materials shall conform to all applicable by-laws, codes, laws, ordinances, statutes, and regulations. Project Co shall track the actual disposition of all material, recording the time and date of the disposal, nature of the materials and the location of the disposal. Project Co shall dispose of all disposed material separately from daily operational refuse. The subcontracting of the disposal of materials shall not relieve Project Co of the responsibilities and requirements of this Article and the Project Agreement. Project Co during its geotechnical evaluation shall determine the level of sodium absorbed within the soils through its use by the Region and City's among others along the Project's alignment. If the values exceed acceptable MOE, Region and/or City or other governing agency limits for normal disposal, Project Co shall dispose of properly and provide a chain of custody of these soils.

As a part of Project Co's Disposal Plan, Waste Management Plan and Recycling considerations, Project Co shall prepare and provide in its design, construction and work plans with narratives and quantities tied to Project Schedule activities and Milestone completion dates contained herein of Project Co's proposed locations along the Project alignment Project Co intends to consider the re-use of suitable and acceptable quality excess excavation and recycled materials for backfill and embankment.

- (b) Project Co shall develop a Waste Management Plan in compliance with the Ontario regulations, Region and City by-laws, codes, and Recycling Council of Ontario.
- (c) Project Co shall comply with the Transportation of Dangerous Goods Act and the Waste Diversion Act during the disposal and handling of all materials.
- (d) Project Co shall consider the following in its Project wide Disposal Plan, Waste Management Plan and Recycling considerations:

All existing materials including but not limited to signs, signage, and sign posts; fencing and posts; traffic signals, controllers, poles; and guard railing belonging to any public agency or private entity shall be salvaged by Project Co and returned to the appropriate agency or private entity, as directed in writing by the public agency, private entity, or Region. Alternatively it shall be disposed of by Project Co, if so directed in writing by the public agency, private entity, or Region.

For greater certainty, all excess materials including but not limited to: bituminous pavement; concrete; fabricated metal and plastic products; wood; masonry; pipes; surplus or unsuitable excavated earth and rock; and other wastes that are not otherwise designated for salvage or reuse by the Region shall be removed from the Project Site and properly transported and re-used or disposed off-site in accordance with all applicable legislation at Project Co's sole expense. More specifically, Project Co shall comply with the Environmental Protection Act, including Ontario

Regulation 347/90 (as amended), and shall use appropriately licensed haulers and receivers for all waste transportation and disposal, as required.

Project Co is solely responsible for the characterization of quality, designation of waste types, delineation of quality and extent of excess material, estimation of quantity, and costs associated with excavation, removal, segregation, temporary stockpiling, loading, transportation and re-use or disposal of excess materials, including excess earth and rock generated by the Work. Under no circumstances shall the Contractor claim additional payment from the Region related to the characterization of quality, designation of waste types, delineation of quality and extent of excess material, estimation of quantity, and costs (whether accurate and correct or not) associated with excavation, removal, segregation, temporary stockpiling, loading, transportation and re-use or disposal of excess materials, including excess earth and rock generated by the Work.

Disposal Sites

The Region has not designated or identified specific haulers, receivers, and/or disposal sites for excess materials generated under the Project Agreement. Project Co is solely responsible for identifying and selecting appropriate haulers, receivers, and/or disposal sites required to complete the Work. Project Co shall name all haulers, receivers and/or disposal sites for all excess materials in Project Co’s Proposal Submission. Failure to name all haulers, receivers and/or disposal sites for all excess materials in the Technical Submission will affect Project Co’s Technical score.

(i) Existing Traffic Signal Equipment and Appurtenance Materials

Project Co shall in accordance with the Project Agreement dispose of all existing traffic signal equipment and appurtenances. However, Project Co shall salvage and return to the Region all existing traffic controllers, all existing pre-emption antenna and communications units (RCCU) from each controller cabinet. In addition, Project Co shall salvage and return to the Region the following equipment identified in Exhibit 18.16-1.

**Exhibit 18.16-1 Additional Traffic Signal Equipment Salvage**

<b>Signalized Intersection Location</b>	<b>Equipment to be Salvaged</b>
Charles Street and Victoria Street	Two (2) Each Video Cameras
Duke Street and Queen Street	One (1) Each Video Camera
King Street and Willis Way Street	Actuated Pedestrian Signal Buttons (APS)
King Street and William Street	Actuated Pedestrian Signal Buttons (APS)
King Street and Allen Street	Actuated Pedestrian Signal Buttons (APS)
King Street and Pine Street	Actuated Pedestrian Signal Buttons (APS)
Charles Street and Gaukel Street	Actuated Pedestrian Signal Buttons (APS)

**Exhibit 18.16-1 Additional Traffic Signal Equipment Salvage**

<b>Signalized Intersection Location</b>	<b>Equipment to be Salvaged</b>
Duke Street and Water Street	Actuated Pedestrian Signal Buttons (APS)

All traffic signal equipment that is requested to be salvage is to be delivered to:

The Regional Municipality of Waterloo, Engineering Department, Operation Centre, 100 Maple Grove Road, Cambridge, ON N3H 4R6.

Project Co shall contact and make arrangements for the delivery of all salvaged Traffic Signal equipment with the Region Traffic Signal Representative.

(ii) Existing Street Lighting Materials

Project Co shall salvage and re-use existing ingress/egress lighting, ornamental and decorative street lights and pedestrian poles, arms and fixtures, as a result of Project Co’s design. Project Co is advised decorative poles and their appurtenances may belong to private property owners as well and thus must be reinstalled based upon Project Co’s approved design and coordination with all parties. Project Co shall return, as directed in writing by the Region, respective City, private property owner, and agency having jurisdiction, all salvaged street and pedestrian lighting materials to the Region, respective City, private property owner and agency having jurisdiction to a designated location to be provided. Please refer to Schedule 15-2 Article 2 Civil and the Project Agreement on the requirements for rehabilitation, restoration and reinstallation of these existing ornamental and decorative poles and their appurtenances.

(iii) City of Kitchener and City of Waterloo Fire Hydrant Materials

Project Co shall salvage and deliver all existing fire hydrants and valves affected by the Work to the City of Kitchener, Kitchener Operations Facility, 131 Goodrich Drive, Kitchener, Ontario, Canada N2C 2E8 and City of Waterloo, Service Centre, 265 Lexington Court, Waterloo, Ontario, Canada N2J 4A8.

(iv) All Grand River Transit (GRT) Assets shall be salvaged and delivered to Grand River Transit, 250 Strasburg Road, Kitchener, Ontario, Canada N2E 3M6.

(v) Railroad Salvage and/or Reuse:

A. Waterloo Spur

Except for the items listed below, Project Co shall dispose and recycle in an environmentally safe manner in accordance with the Project Agreement all existing track materials including running rail, tie plates, joint bars, grade crossing material, ties, and other track materials (OTM) on the Waterloo Spur. Project Co shall return to the Region the following items:

1. All 100RA running rail, joint bars, ties plates.
2. All compromise bars regardless of rail type.
3. Reclaim and bundle up to 1,500 ties to be marked by the Region and secured with steel banding.
4. Reclaim, match mark, and bundle the two turnouts, including all OTM, switchstands, switch timber marked by the Region, rods, and special plating, located north of Erb Street accessing the existing railroad passenger station.
5. Reclaim 50 sections of 85lb rail, to be marked by the Region, including joint bars and ties plates,
6. All road crossing warning equipment that is marked by the Region for retention.

These materials shall be neatly stock piled north of Northfield Drive along the Waterloo Spur Right-of-Way beyond the clearance line of the existing track. Tie plates, joint bars, and OTM shall be placed in steel barrels and running rail shall be placed on level ground and supported on ties spaced 3 meters apart.

**B. CN Guelph Subdivision – King Street Grade Separation**

The CN is responsible for removing, disposing, and installing all trackwork components for the Guelph subdivision. Project Co is responsible to include the scope of work related to the removal, disposal, and installation of trackwork in a design package that will be submitted to the CN for their handling.

**C. CN Huron Spur**

The CN is responsible for removing, disposing, and installing all trackwork components for the Guelph subdivision. Project Co is responsible to include the scope of work related to the removal, disposal, and installation of trackwork in a design package that will be submitted to the CN for their handling.

**(e) Hazardous Materials**

Project Co will encounter hazardous and/or contaminated materials on the Project alignment in accordance with the EPR, Environmental Site Assessment contained within the Project Agreement, and other available data. Project Co shall include time in its Project Schedule and Work for sampling, testing and characterization, handling, and disposal activities and tied to work predecessor and successor activities to avoid a delay to the Project Schedule to address the known locations for sampling, testing and characterization, removal, handling, chain of custody and disposal in accordance with the Federal, Provincial, Region and City by-laws, codes, and regulations.

Project Co shall not chase any contaminated material discovered during the Work, unless specifically directed by the Region. Project Co shall inform the Region immediately of the discovery of any contaminated material during any excavation for the action and direction to be taken. Project Co generated contaminated materials are the sole responsibility of Project Co to remove and dispose.

Project Co is solely responsible for the characterization of quality including sampling and testing, designation of waste types, delineation of quality and extent of excess material, estimation of quantity, and costs associated with excavation, removal, segregation, temporary stockpiling, loading, transportation and re-use or disposal of contaminated materials, including excess earth and rock generated by the Work.

Project Co shall refer to the Project Agreement for payment of contaminated material handling and disposal.