

Part 1 GENERAL

1.1 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from the Departmental Representative.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to the Departmental Representative, in writing, any defects which may interfere with proper execution of Work.
- .3 Work included in the project and executed after completion of the Work or work phase under this contract but that are expressly excluded.
 - .1 Supply and installation of communications cables will be executed by Departmental Representative. The Contractor must include necessary time in work schedule for this work.
- .4 Work not included in the project but executed during the work under this contract for maintenance and repair of existing installations needed to keep the border crossing operational.
 - .1 Periodically maintenance work will be carried out by service providers selected by the Departmental Representative. The Contractor will be notified 2 days in advance except in the event of an emergency. In such circumstances the suppliers must have access to the work site.

1.2 DEPARTMENTAL REPRESENTATIVE'S SERVICE PROVIDER

- .1 Departmental Representative's works with some providers for supplying and installing any components.
- .2 Contractor must include in tender the cost of supplying, installing and preparing the shop drawings for these components.
- .3 The Contractor is responsible for Departmental Representative suppliers and must coordinate operations to integrate elements into project in a timely fashion in accordance with the project's timetable.
- .4 Provider's list :
 - .1 Cylinders and keys – Refer to section 08 71 00 – Door hardware.
 - .2 Signage – Refer to section 10 14 00 – Interior signage.

1.3 WORK SEQUENCE

- .1 Construct Work in stages to accommodate the Departmental Representative's use of premises during construction.
- .2 Indoor work:
 - .1 Take into consideration that a part of the building will remain in operation throughout the work (24/7).
 - .2 Before undertaking work, seal off work areas with temporary partitions to block noise and dust.
 - .3 Maintain accesses and safety exits for occupied areas at all times.
 - .4 Coordinate interruptions to services 72 hours in advance if they interfere with the operations of the Department's Representative.
 - .5 Carry out work on ground floor and to install temporary partitions on ground floor and in the basement during the evening or night shifts.

- .3 Outdoor work:
 - .1 Construct outdoor work in stages as indicated below.
 - .2 Phase 1
 - .1 Do work on S2 and S3 parking lots including paving and pavement markings.
 - .2 Work adjacent to the main road (highway 15 northbound) may be undertaken during this phase. Keep two lanes, 7.5 m total width, free at all times. Install temporary Install temporary safety barriers to protect traffic lanes from work area. Install and remove temporary safety barriers in the present of traffic flaggers to ensure safety of travellers and workers and during night shift.
 - .3 Work adjacent to "generator and sanitary bloc" may be undertaken during this phase. Maintain safe access to building at all times with sidewalk and temporary ramp.
 - .3 Phase 2
 - .1 Undertake Phase 2 work once Phase 1 is completed.
 - .2 Work on expansion and new access to S4 parking lot. Maintain existing access to parking lot and leave a minimum of ten (10) spaces available to the Department Representative.
 - .3 After finalization of phase 1, the S4 parking lot will be left at the disposal of the Contractor for parking, storage and other needs. Organize work in this sector to avoid interference with the project timetable.
 - .4 Phase 3 / Civil work on main roads.
 - .1 Civil work on main roads:
 - .1 Highway 15 southbound.
 - .2 Highway 15 northbound.
 - .3 Detour for trucks, southbound.
 - .4 Sector south of primary inspection line (PIL).
 - .5 Sector south of primary inspection line for commercial carriers.
 - .2 The sectors identified above must be carried out in accordance with the following constraints:
 - .1 Avoid the months of June, July and August.
 - .2 Avoid statutory holidays and long weekends.
 - .3 Unless otherwise indicated, sequence work in order to be completed by the weekend.
 - .4 Retain the services of an American contractor for signposting on US side of the border.
 - .5 Other constraints identified on drawings.
 - .3 Flaggers must be used when changes in configuration are made between phases.
- .4 Construct Work in stages to provide for continuous public usage.
- .5 Maintain fire access/control.

1.4 CONTRACTOR USE OF PREMISES

- .1 Use site in compliance with work sequence (phasing).
- .2 Co-ordinate use of premises under direction of Departmental Representative.
- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain .

- .5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.5 OCCUPANCY BY THE DEPARTMENTAL REPRESENTATIVE

- .1 The Departmental Representative will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with the Departmental Representative in scheduling operations to minimize conflict and to facilitate the Departmental Representative usage.
- .3 In addition to specification requirements, refer to "Contractor – Health, safety and environmental policy handbook (HS-105-00), Appendix 01 11 01-A1 appended to this section. Brookfield SGI is the company responsible for management of the St-Bernard de Lacolle border crossing installations. The document applies to interventions and activities that may have an impact on the safety of occupants and/or public and installations. In the event of differences between specification requirements and appended documents, the most restrictive restrictions will apply. The Contractor must send the Departmental Representative a copy of the document signed and initialled prior to the start of work.

1.6 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.7 CODES, STANDARDS AND OTHER REFERENCE DOCUMENTS

- .1 Work must be carried in accordance with National Building Code NDC requirements, including amendments published until the deadline for receipt of tenders, and other provincial and local codes. Where there are differences in requirements, the most stringent requirement will apply.
- .2 Work must satisfy or exceed requirements of the following documents.
 - .1 Contract documents.
 - .2 Standards, codes and other prescribed reference documents.

1.8 EXISTING UTILITY SERVICES

- .1 Notify Departmental Representative and utility companies one week ahead of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative one week's notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to tenant operations.
- .3 Provide alternative routes for personal and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .5 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties. Integrate information into Gantt diagram under Section 01 32 16.06.

- .6 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction..
- .10 Record locations of maintained, re-routed and abandoned service lines.
- .11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .12 In addition to specification requirements, refer to appendix 01 11 01-A1 - "Contractor – Health, safety and environmental policy handbook (HS-105-00) for additional requirements attached to this section.

1.9 REQUIRED DOCUMENTS

- .1 Maintain at job site, in accordance with the Security Requirements for this project, one copy of each of the following document:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.

1.10 SUBSTANTIAL COMPLETION

- .1 Substantial completion of work must be preceded by an inspection by the Departmental representative to ensure occupation of building is possible.
- .2 Contractor must ensure identified inspection points have been identified prior to the Departmental representative.
- .3 It is not possible to proceed to the next step before the verification process is complete.

1.11 SURVEY REFERENCE POINTS

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Departmental Representative.

- .4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

1.12 SURVEY REQUIREMENTS

- .1 Establish lines and levels, locate and lay out, by instrumentation.
- .2 Stake for grading, fill and topsoil placement.
- .3 Establish pipe invert elevations.
- .4 Stake batter boards for foundations.

1.13 Establish foundation column locations and floor elevations.

- .1 Establish lines and levels for mechanical and electrical work.

1.14 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

Part 2 PRODUCTS

2.1 Not used.

- .1 Not used.

Part 3 EXECUTION

3.1 Not used

- .1 Not used.

END OF SECTION

Section 01 11 01- A1

Annex 1

Health, safety and environmental policy handbook

HS-105-00



Brookfield
Global Integrated Solutions



INSPIRING
BETTER BUSINESS
PERFORMANCE



CONTRACTOR HEALTH, SAFETY AND ENVIRONMENTAL POLICY HANDBOOK

HS 105 00

Rev 4 – May 13, 2015

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2 Brookfield GIS Health and Safety Policy

The safety and well-being of our team members is inherent in Brookfield GIS group of companies operating philosophy. It is a value embedded in our corporate culture and a practice reflected in our health and safety program and our business processes. We are the industry leader in workplace management solutions and our focus on the welfare of our team members has helped to position us there.

Brookfield GIS group of companies is committed to all of its employee's and complying with all applicable health and safety legislation, requirements, codes of practice, internal standards and guidelines subscribed to by ourselves and/or our clients.

Through audits, team member feedback, accountability and periodic reviews, we are continually striving to improve upon our safety performance and our program. We set specific performance goals and targets, implement programs and initiatives and provide communication and resources to keep safety at the forefront and move towards a zero incident rate.

Team members are integral in implementing and maintaining a safe and healthy workplace for ourselves, our contractors and all personnel who enter our workspace. We ensure our employees are aware and understand their rights and their responsibilities with respect to health and safety. To this end, we ensure that this policy is communicated to, and understood by all Brookfield GIS group of companies employees and the employees of our sub-contractors who are involved in the delivery of work implemented by Brookfield GIS group of companies, that team members provide input and participate in all health and safety related programs and initiatives and that safety and well-being is the fabric of all our activities. Brookfield GIS group of companies employees understand the importance of safety and well-being at a personal and organizational level, and Brookfield GIS group of companies fosters this culture through our ongoing initiatives. Together, we will ensure that every day is a safe one.

SAFETY FIRST, it is the way we do business!

3 Brookfield GIS Environmental Policy

Environmental stewardship is a cornerstone of Brookfield GIS group of companies operating philosophy. It is a value embedded in our corporate culture and a practice reflected in our national environmental management system and our business processes. Not only do we manage environmental impacts resulting from self-performed and sub-contractor delivered services, we also manage our clients' impact on the environment in thousands of buildings across Canada. We are the industry leader in workplace management solutions and our Focus on environmental stewardship has helped to position us there.

The communication of this policy is paramount to its understanding and effectiveness. Therefore we have taken measures to ensure that it is communicated to, and understood by all Brookfield GIS group of companies' employees and the employees of our sub-contractors who are involved in the delivery of work implemented by Brookfield GIS group of companies.

Brookfield GIS group of companies is committed to complying with all applicable environmental legislation, requirements, and codes of practice, internal standards and guidelines subscribed to by ourselves and/or our clients. Brookfield GIS group of companies and its employees are also committed to conducting our operations in a manner that actively prevents pollution.

Brookfield GIS group of companies is always aiming for continual improvement in our environmental practices. We set specific performance goals and targets, and provide our team with the resources to achieve these objectives. Our progress related to meeting these targets is reviewed and evaluated regularly, while our overall environmental program, policy and management system are reviewed annually.

Brookfield GIS group of companies employees understand the importance of environmental and social responsibility at a personal and organizational level, and we will foster this culture through ongoing training and education.

Together, we can make a difference.

4 Disclaimer

The intent of Brookfield GIS' Health, Safety & Environment Policy Document for Contractors is to provide a written overview of Brookfield GIS' minimum policies and procedures with respect to Health, Safety and Environment (HS&E). This handbook does not address all HS&E issues which may arise during completion of work. Nor is this document intended to address or replace the Contractor's duties and requirements with respect to regulatory compliance and best practices, and in conducting work in a manner that creates a safe and healthy environment for its own employees, Brookfield GIS, building occupants and the public. It is the responsibility of the Contractor to operate in compliance with all applicable legislation and regulations that may pertain to its activities. Compliance with this document does not relieve the Contractor from any liability that may result from the Contractor's actions or from failure to act in accordance with applicable legislation. Where applicable, Brookfield GIS may provide to the Contractor additional HS&E policies and procedures, relating to specific site or job requirements, which the Contractor shall comply with. This document may be modified at any time at Brookfield GIS' discretion.

5 Purpose

The purpose of this document is to assist contractors in understanding Brookfield GIS' minimum HS&E requirements while undertaking work at a Brookfield GIS controlled space. This document is a general overview of Brookfield GIS' protocols and should be used in conjunction with the Contractor's own environment, health and safety policies, procedures and programs. Contractors are responsible for controlling workplace activities and for maintaining and promoting a safe and healthy work environment. It is Brookfield GIS' expectation that the information in this document is communicated to all the Contractor's employees and any of its subcontractors. As a large percentage of contract work is completed at non-Brookfield GIS supervised locations, we expect Contractors to be conscientious of their HS&E practices and their reflection on Brookfield GIS. In the event that the Contractor is unable to meet the requirements outlined in this document, the Contractor is to notify Brookfield GIS immediately. Assistance in meeting the requirements will be reviewed on a case by case basis.

6 Policies

Brookfield GIS is dedicated to becoming "best in class" with respect to HS&E. Our culture is one in which health, safety and environment are more than words in our value statement, and they are integrated into our daily activities and are part of our culture. Our Health and Safety and Environment Policies are located in Appendix A. These policies are reviewed annually. Brookfield GIS maintains both health and safety and environmental management systems and is registered to ISO 14001 for certain contracts.

Contractors will:

- Be aware of Brookfield GIS' HS&E policies
- Review with their designated Brookfield GIS contact any applicable objectives, targets and environmental programs
- Comply with Brookfield GIS' HS&E policies
- Upon request provide evidence of competency and/or compliance
- Understand the HS&E impacts related to contractor's activities and be aware of the appropriate operational controls to address any areas of risk.

7 Auditing

Brookfield GIS reserves the right to audit the Contractor for its adherence to the HS&E requirements of the work being performed. An audit may include workplace inspections, visual observations, interviews and document review, including training records, certifications and HS&E related statistics. Action plans, including person responsible and time line, are to be provided to the Brookfield GIS contact for any observations noted.

8 General Requirements

8.1 Health and Safety Program

All contractors and sub-contractors must have a health and safety program in place. Upon request, contractors must submit to Brookfield GIS evidence of a comprehensive health and safety program and other specialized plans may be required.

8.2 Subcontractors

All Contractors are required to review this manual with all sub-contractors and are responsible for ensuring that all Brookfield GIS policies and procedures are complied with. Brookfield GIS reserves the right to request Contractors audit their sub-contractors and forward action plans for any non-conformances.

8.3 Facility Access and Security

Contractors are to review facility access and security requirements with their designated Brookfield GIS contact. The Contractor is to immediately inform their Brookfield GIS contact of any security or facility access issues

8.4 Working Alone at Remote Sites

Contractors who are working alone at remote sites must have a Work Alone Policy in place.

8.5 Behavior

All contractors are to conduct themselves in a professional manner. Behavior which violates Brookfield GIS' policies or has the potential to endanger the safety and well-being of any of the building occupants is grounds for removal from the site.

Inappropriate behavior includes but is not limited to:

- Use, possession, distribution, offering, sale or being under the influence of alcohol, illicit drugs, illicit drug paraphernalia or non-prescribed drugs for which a prescription is legally required in Canada, while on company business or premises.
- Disorderly or violent conduct
- Theft or intentional damage to property
- Entering restricted areas
- Harassment
- Criminal activities

8.6 Housekeeping

The Contractor is to maintain a clean and orderly work area. Contractors are to clean and remove all non-hazardous solid waste and recyclables at regular intervals throughout the shift and at the end of each shift. Required waste containers are to be provided by the Contractor. Clear access is to be maintained to and in contractor working areas. Access to electrical panels, fire extinguishers, safety showers and eyewash stations, fire hydrants and points of egress are to be kept free and clear of all obstructions unless written approval is obtained from Brookfield GIS.

8.7 Personal Protective Equipment (PPE)

Contractors are responsible for conducting job assessments to determine the appropriate PPE necessary for the work being conducted and are responsible for its provision. Contractors must also be able to demonstrate that the employees have been trained in and conducted proper inspection, maintenance, and safe use of that equipment.

8.8 Training, Licenses and Certifications

Contractors must have all appropriate professional training, licenses and certifications required for the work being performed. Training records and copies of licenses, certifications are to be made available upon request. Contractors are to have their own HS&E program and be able to confirm in writing that the Contractor's employees have received and understood all health, safety and environment training appropriate to the scale of work being undertaken.

8.9 Hazard Identification / Stop Work & Reporting

It is the Contractor's responsibility to be aware of all dangers or hazards associated with the work performed and the work environment and to remove and / or control the hazard or danger prior to commencement of work. To assist the contractor in this regard, Brookfield GIS is in the process of installing hazard stations at managed properties. Should Contractors have questions regarding site hazards they can contact our 24 hour support line at **1-877-445-0611**. All potential or existing dangers or hazards observed by the Contractor shall be reported to the designated Brookfield GIS contact. Any danger or hazard observed beyond the control of the Contractor is to be reported to the designated Brookfield GIS contact immediately and the Contractor is to avoid the hazard or danger until it is eliminated or controlled. The Contractor may not conduct any work that may result in a danger or hazard to people, environment or property. Where an existing danger or hazard is present, or where the Contractor reasonably believes that an imminent danger or hazard is present, the Contractor has the right to stop work so that the danger or hazard is eliminated or safe work practices are incorporated. For the purposes of this policy, a danger or hazard may include, but is not limited to:

- A situation for which the individual is not properly trained or experienced.
- A situation for which the individual is not equipped (i.e. safety or personal protective equipment).
- A situation where the individual believes that proper procedures and work practices are not being followed.
- A hazard that is not typical to the individual's work activities or job.
- A worker unfit for work due to the influence of alcohol or illegal or mind-altering substances.
- A danger that would normally stop work in the affected area.
- A situation where the environment may be adversely affected and regulatory authorities would be involved;
- A situation which may result in equipment / property damage.

Any stop work situations are to be reported immediately to the Brookfield GIS contact. The designated Brookfield GIS contact is to be advised of the danger or hazard, the corrective action and when the situation is resolved.

8.10 First Aid / Medical Emergencies

All Contractors are responsible to ensure that first aid, emergency medical services and transportation are provided to its employees. Contractors are also required to provide trained first aid personnel, supplies, and equipment as applicable. It is possible that professional medical aid may be available at some locations. Please review potential assistance with your Brookfield GIS contact. Any access to professional aid does not release the Contractor of ensuring emergency assistance is provided to its employees.

8.11 Accident / Incident Investigation and Reporting

Contractors are required to report all accidents / incidents, regardless of severity, to their Brookfield GIS contact on the Brookfield GIS Incident Injury Report Form. All incidents resulting in serious injury or illness, damage to property or equipment or environmental contamination are to be reported to Brookfield GIS immediately. All near misses that may have resulted in serious injury or illness, damage to property or equipment or environmental contamination are also to be reported immediately. Contractors must also report immediately to Brookfield GIS any unplanned or uncontrolled fire, explosion or flood, as well as any collapse or failure of a building or structure. Where the incident resulted in a recordable injury (time loss and / or medical aid sought) or where a regulatory authority must be contacted (e.g., Ministry of the Environment or Ministry of Labor), Brookfield GIS is to be notified concurrently and a copy of the investigation report is to be forwarded upon completion. It is the Contractor's responsibility to contact the appropriate regulatory authority when it is required due to the nature of the incident. Where reporting of an incident to a regulatory authority is required, the Contractor shall comply in accordance with applicable health and safety legislation in the course of any subsequent investigation or inspection and, where required, the incident scene shall not be disturbed or altered until the site is released by the appropriate regulatory authority.

8.12 Emergency Evacuation

In order to ensure personal safety, Contractors are required to be aware of the entire emergency evacuation procedures for the location of work. Review this information with your Brookfield GIS contact.

8.13 Work Area Protection and Hazard Notification

All work areas must be appropriately barricaded and signage where required. Contractors are responsible for providing signs, cones, plastic sheets, guardrails and other materials to create an effective barricade to isolate the work environment from the building occupants and to prevent unauthorized access. Any requirements to block means of egress, fire, life or other safety equipment must first be approved by the Brookfield GIS contact. Signs and barricades may not be removed until the work is completed or all hazards are eliminated. Where the work being conducted may create a temporary hazard to the building occupants (e.g., wet floor) the Contractor shall ensure the appropriate signage and / or barriers are posted. The signs / barriers may not be removed until the hazard is eliminated. Where work being conducted could affect the health, well-being or comfort of the building occupants (e.g., paint fumes) the Contractor shall inform the building occupants through the Brookfield GIS contract prior to the start of work.

8.14 Tools and Equipment

Contractors are responsible to provide their own tools, equipment and vehicles and are required to conduct the work in a safe manner in accordance with all regulatory requirements.

Contractors are responsible for the safe operation of any equipment brought on location and must be able to demonstrate that all operators of said tools and equipment are trained and qualified to do so. Contractors are also responsible for the inherent integrity of the tools and equipment itself and must be able to demonstrate that the equipment has been properly maintained and is safe for use.

8.15 Brookfield GIS Owned Tools and Equipment

Unless written authorization is obtained, Contractors may not use Brookfield GIS owned or leased tools or equipment. In cases of written authorization, Contractors will provide copies of any training records / certifications required to operate the tools and / or equipment. The contractor will also sign the Brookfield GIS “Loan of Equipment” waiver.

8.16 Power Tools

All power tools are to be double insulated or equipped with grounded power cords. Ground Fault Interrupters (GFI) or other similar devices must be used in wet or damp locations. The Contractor’s employees must be properly trained in their use and the tools are to be maintained in a safe operating condition.

8.17 Explosive Actuated Tools

Any Contractors using explosive actuated tools must be competent, trained and certified as required. The Contractor is to ensure that all explosive actuated fastening tools are properly inspected before and after each use and that no alterations be carried out to any protective guards. The contractor shall ensure that all requirements regarding safe use, storage and removal process is carried out in accordance with the appropriate legislation. Equipment is to be properly maintained and all Contractors are to be trained in its use and safe operation.

8.18 Electrical Safety

It is the Contractor’s responsibility to have a safe electrical program as required. Contractors working on or near live equipment must be qualified to do so. Contractors must not work on low or high voltage unless specifically retained to do so. Energized parts, circuits, panels and other equipment must be properly guarded. Unguarded energized parts must not be left unattended. All electrical devices must be properly grounded or double insulated.

8.19 Ladders

All Contractor ladders must be labeled with the Contractor’s name. All ladders are to be maintained in good condition at all times and inspected prior to use. Employees using ladders must do so in a safe and responsible manner. Any defective ladders are to be tagged as such and removed from site.

8.20 Working at heights

It is the Contractor's responsibility to select the appropriate fall protection measures for the work to be performed. When working at heights, the area below is to be cordoned off as the work area protection requires. Contractors must be able to demonstrate that all equipment has current inspection certificate and is maintained as per regulatory requirements and that all personnel have current and appropriate training.

8.21 Scaffolding

All scaffolding is to be erected, maintained and inspected in accordance with all applicable regulations, codes and engineering practices. The Contractor is to ensure competent supervision of any modification process and have written approvals of such modifications. Precautions must also be taken to ensure that each scaffold does not exceed structural or design limits set out by applicable provincial legislation. The Contractor must also provide all scaffolds and safety equipment required for the entire project. Copies of the inspection reports are to be available upon request

8.22 Industrial Powered Vehicles, including Lifting Devices

All Contractors operating industrial powered vehicles must be trained and licensed or certified in the operation of the particular equipment to be used. If the Contractor has received written authorization to use Brookfield GIS equipment, the "Loan of Equipment" waiver must be signed prior to use and all Brookfield GIS process and procedures with respect to the equipment must be followed.

8.23 Motor Vehicles

All Contractors operating motor vehicles are to have and maintain a valid driver's license and a responsible driving record. Contractors must exercise due caution when driving on customer sites.

8.24 Material Handling

All Contractors involved in manual material handling should be aware of and trained in proper material handling procedures and are to use material handling equipment where appropriate. Equipment is to be properly maintained and all Contractors are to be trained in its use and safe operation.

8.25 Noise

Contractors must work in a manner that does not create a disruption to the normal course of business. Any activity that produces noise that interferes with the business operation must be completed during off-hours. Contractors shall ensure that their employees have proper and adequate noise and hearing protection.

8.26 Lighting

Contractors shall ensure that proper and adequate workplace lighting is provided in accordance with applicable legislative and regulatory requirements.

8.27 Working in cold and hot environments

Contractors are to have policies and procedures in place to ensure their employees are appropriately protected when working in cold and hot environments.

8.28 Asbestos Containing Material (ACM)

It is possible that the Contractor may be working in an area where ACM is located. Please review potential ACM locations with your Brookfield GIS contact prior to commencing work. The presence of various friable and or non-friable asbestos containing material (ACM) has been identified or is presumed to be present at all Brookfield GIS managed facilities constructed prior to 1992. The contractor / service provider shall review prior to their work, the building asbestos survey or asbestos notification letter (attached in appendix A), either or shall be placed in the site hazard station. Buildings without a hazard station, asbestos survey or notification letter are to be regarded as buildings that may contain ACM. Contractors may not intentionally disturb ACM unless specifically retained to do so, in which case Brookfield GIS' Asbestos Management Program and all Client requirements must be followed. If a Contractor unintentionally disturbs suspected or known ACM, stop work and immediately inform your Brookfield GIS contact.

8.29 Mould

The Contractor is to notify the designated Brookfield GIS contact if any mould or mildew is observed in the work location. The Contractor must not disturb an area suspected to be contaminated with mould.

8.30 Infection Control

All Health Care Centers where the Contractor will be performing construction / maintenance will adhere to the Infection Control and Dust Containment requirements as per Canadian Standards Association CSA Z317.13-12 documentation titled Infection Control during Construction, Renovation or Maintenance of Health Care Facilities (2012).

8.31 Halocarbon Management

Contractors that work on systems that contain halocarbons are required to manage those systems in accordance with Brookfield GIS policy. Brookfield GIS policy dictates that Federal legislation shall be applied in every circumstance. Contractors are required to report any halocarbon release regardless of the quantity to Brookfield GIS immediately. All contractors shall adhere to their legislative requirements of having ODS or ODP qualified personnel to maintain the systems. All leak test tags and onsite report logs shall be updated and or provided by the contractor. Only Brookfield GIS-approved leak-test tags will be utilized.

8.32 Site Specific Hazards / Requirements

Any site specific hazards or requirements not covered by this manual should be identified, reviewed, assessed and controlled with the Brookfield GIS contact immediately.

9 Requirements Brookfield GIS Notifications / Permits

9.1 Fire and Life Safety

Contractors are to provide their own fire protection equipment as required, including but not limited to fire extinguishers. Use and storage of flammable and combustible materials must be conducted in accordance with all codes and regulation and their use and storage must be approved by the Brookfield GIS contact prior to bringing the material on-site. Contractors may not conduct any work that will affect the building's fire life safety systems unless specifically retained to do so and the Brookfield GIS contact is aware of and approved the timing of the work prior to its commencement.

9.2 Hazardous Materials Management, including compressed gases

- Contractors are required to obtain permission prior to bringing hazardous materials to a work location.
- Quantities brought and maintained at location of work should be minimized and appropriate to the nature and scope of work.
- Contractors must maintain an updated inventory of hazardous materials on-site; current Material Safety Data Sheets are to be located in proximity to the hazardous materials storage and areas of use and must be accessible to Brookfield GIS and emergency response personnel.
- It is the Contractor's responsibility that all hazardous materials are properly handled and stored in accordance with all regulatory and code requirements and all WHMIS labeling requirements are met.
- It is also the Contractor's responsibility to have an appropriate spill response plan and required equipment in place.
- The Contractor must be able to demonstrate that its employees have received WHMIS training and are knowledgeable in spill response appropriate to the material at the work location.
- Any releases or spills that results in a requirement to contact a regulatory authority must be investigated and reported as per the Accident / Incident Investigation and Reporting section.
- All Contractors must be able to demonstrate that its employees involved in the transporting of hazardous materials have Transportation of Dangerous Goods training appropriate to their role.

All hazardous waste generated by the Contractor is to be removed through Brookfield GIS unless written authorization is received.

9.3 Lockout / Tag Out

It is the Contractor's responsibility to have a hazardous energy control program in place (Lockout/Tag out) if they are involved in maintaining and / or repairing equipment. This program is to be available to Brookfield GIS for review upon request. Prior to initiating a lockout / tag out, the Contractor must inform the Brookfield GIS contact of the location and estimated duration of the equipment lockout / tag out and will conduct a review of all energy sources and the equipment specific written procedure.

9.4 Welding / Cutting (Hot Work)

It is the Contractor's responsibility to have a hot work program. The Contractor must inform their Brookfield GIS contact and have a Hot Work permit issued prior to the start of any hot work. If hot work is being conducted within a building, it must be planned (through scheduling, engineering controls etc), to minimize building occupant's exposure to fumes and other hazards. Precautions must also be undertaken to prevent interference with fire life safety systems. A work and post-work spotter is required where there is a risk of fire or where the fire life safety systems are impaired or off line. The Contractor is responsible for providing all fire protection equipment and personnel.

9.5 Confined Space

All Contractors entering a permit restricted confined space must follow Brookfield GIS' confined space business process and permit requirements. A Contractor may only enter a permit restricted confined space upon review of the specific confined space entry procedure and issuance of a Brookfield GIS Confined Space Entry and other applicable permits. The Brookfield GIS contact must be informed prior to an entry. It is the Contractor's responsibility to provide their own safety equipment including PPE, monitoring and rescue equipment.

9.6 Crane, Hoist, and Other Lift Equipment

Contractors will obtain approval from their Brookfield GIS contact prior to bringing on-site and using cranes, hoists, and other lifting equipment. All operators must be trained and certified in the equipment being used. The equipment is to be maintained as per the manufacturer's recommended maintenance and safety requirements and an up-to-date inspection report certifying the equipment is to be available upon request. A copy of the crane hand signals that will be used are to be posted. The Contractor must ensure that loads never exceed the set limits and that suspended loads are never left unattended.

9.7 Worksite Inspections

Brookfield GIS requires all contractor worksites to be inspected for hazards, when found corrected or isolated as per the applicable provincial / federal legislated regulations. Brookfield GIS requires that all worksites are to be inspected regardless of size or scope of work. Required frequencies are at the start of a project, when site conditions change, after an accident or at a

minimum once per month thereafter. All inspection reports shall be without delay forwarded to the contractor's Brookfield GIS contact person. In cases where the contractor does not have an Inspection report they can use the Brookfield GIS (HS 253 00 Workplace Safety Checklist Audit Form) which can be obtained from the contractor's Brookfield GIS contact person.

10 Appendix A

10.1 Contractor / Service Provider Asbestos Notification

Brookfield GIS Facility Management Services, Workplace Solutions Inc. RealSuite Inc.

Letter of Notification:

WORKING WITH ASBESTOS CAN BE EXTREMELY DANGEROUS. INHALING ASBESTOS FIBRES CAN CAUSE VARIOUS TYPES OF LUNG DISEASE, MESOTHELIOMIA OR CANCER.

Asbestos may be present in the following materials as listed: Cement Pipes, Cement Wallboard, Cement Siding, Asphalt Floor Tile, Vinyl Floor Tile, Vinyl Sheet Flooring, Flooring Backing, Constructions Mastics, Acoustical Plaster, Decorative Plaster, Textured Paints/Coatings, Ceiling Tiles and Lay-in Panels, Spray-Applied Insulation, Blown-in insulation, Fireproofing Materials, Taping compounds (thermal), Packing Materials, High Temperature Gaskets, Laboratory Hoods/Table Tops, Laboratory Gloves, Fire Blankets, Fire Curtains, Elevator Equipment Panels, Elevator Brake Shoes, HVAC Duct Insulation, Boiler Insulation, Breaching Insulation, Flexible Fabric Ductwork, Cooling Towers, Pipe Insulation, Heating and Electrical Ducts, Electrical Panel Partitions, Electrical Cloth, Electric Wiring Insulation, Chalkboards, Roofing Shingles, Roofing Felt, Base Flashing, Thermal Paper Products, Fire Doors, Caulking/Putties, Adhesives, Wallboard, Joint Compounds and Spackling, Vinyl Wall Coverings.

The presences of various friable and or non-friable asbestos containing material (ACM) have been identified or are presumed to be present at all Brookfield GIS managed facilities constructed prior to 1992. The contractor / service provider shall review prior to their work, the building asbestos survey or asbestos notification letter, either or shall be placed in the buildings log book. Buildings without a log book, asbestos survey or notification letter are to be regarded as buildings that may contain ACM. Where applicable Brookfield GIS will review with the contractor / service provider personnel the locations of known ACMs as noted on the asbestos survey. The Brookfield GIS Asbestos Management Program applies to all maintenance, repair and renovation work that may disturb asbestos materials. The disturbance of asbestos building materials may only be undertaken by qualified contractors who have received training in asbestos-related precautions and procedures (as per the provincial / federal Occupational Health Safety Act and the governing regulations). As a condition of your contract to provide services and materials to Brookfield GIS, the contractor / service provider shall not disturb asbestos-containing materials without prior notification to Brookfield GIS. The contractor / service provider and its workers, while at any location will follow all procedures specified by the Brookfield GIS Asbestos Management Program.

Thank you for your ongoing support

“SAFETY FIRST, IT’S THE WAY WE DO BUSINESS”

11 Appendix B

11.1 Brookfield GIS Required Project Specific Safety Documents

11.1.1 Signed and Initialed Brookfield GIS Contractor Handbook

- This document must be read and initialed and signed by the contractor's representative and provided to the PM prior to work beginning.

11.1.2 Job Hazard Assessment

- A job Hazard Assessment must be done prior to work commencing on a site and depending on the project Job Hazard Assessments must be completed when worksite conditions change or a new Hazard is introduced into the worksite.

The contractor is to have, at minimum, the above documentation provided to the Project Manager at the start of a project.

11.2 The following documentation must be provided to the PM as soon as possible during the project if applicable.

11.2.1 Pre Project Safety Inspection

Where the project involves alterations to the structure of the building a Pre Projection Safety Inspection is to be completed to identify any risks to the tenants of the facility as well as the workers completing the task.

11.2.2 Project Safety Plan

If applicable a Project Safety Plan should be completed prior to a project beginning and to be available and reviewed by all personnel on site prior to commencing work.

11.2.3 Site Safety Orientations

Where one or more individuals are working on a jobsite a Site Safety Orientation must be done in order for the worker(s) to familiarize themselves with the environment they will be working in. There may be Site Specific Rules that will only apply to that location and all workers must be made aware of these rules.

11.2.4 Emergency Response Plan

In case of an emergency there must be a plan in place to respond to the situation. This must be provided to the PM in charge of the project.

11.2.5 Toolbox/Safety Meetings

A Toolbox or Safety Meeting must happen at the beginning of a project and should take place periodically throughout the project as well. The minutes of these meetings must be provided to the PM.

11.2.6 Work Permits (Lockout/Tag out, Hot Work)

A work permit system must be in place as required.

11.2.7 Incident Reports - Near Misses

Any incident or near miss that occurs on a BGIS Project is to be immediately reported to the PM and appropriate documentation including any investigation material provided within 72hours unless client requirements dictate otherwise.



12 CONTRACTOR ACKNOWLEDGEMENT

I _____, the Contractor (or the Contractor Representative), by signing this document acknowledge that I have read and understand the rules and policies outlined in the previous pages. I also acknowledge receipt and acceptance of the Brookfield GIS **“Contractor Health, Safety and Environmental Policy Handbook”**.

Company Name (Please print)

Signature (Contractor / Contractor Representative)

Name (Please print)

Title / Position

Date

Part 1 GENERAL

1.1 PRECONSTRUCTION MEETING

- .1 Within seven days after award of Contract, a meeting of the parties to the contract will be organized by the Departmental Representative to discuss administrative procedures and define the responsibilities of each.
- .2 Departmental Representative, Contractor, field inspectors and supervisors will be in attendance.
- .3 Departmental Representative will establish time and location of meeting and notify parties concerned minimum three days before meeting.
- .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with 01 32 16.06 - Construction Progress Schedule – Critical path method.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Delivery schedule of specified equipment in accordance with Section 01 32 16.06 – Construction Progress Schedule – Critical path method.
 - .6 Site security in accordance with Section 01 52 00 – Construction Facilities.
 - .7 Proposed administrative requirements about projects changes.
 - .8 Departmental Representative provided products.
 - .9 Record drawings in accordance with Section 01 78 00 – Closeout Submittals.
 - .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
 - .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .12 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .13 Appointment of inspection and testing agencies or firms in accordance with Section 01 45 00 – Quality Control.
 - .14 Special project procedures, phasing and security.
- .5 Comply with Departmental Representative's instructions regarding site mobilization zones, site office and sheds, circulation access and parking.
- .6 Use communication procedures established by Departmental Representative during construction of work site installations and temporary utilities: submittals for approval, reports and files, schedules, coordination of plans, recommendations and resolution of conflicts and ambiguities.

1.2 PROGRESS MEETINGS

- .1 The Departmental Representative will organize a schedule of meetings to be held regularly every two weeks during the course of the work.
- .2 Contractor and Departmental Representative are to be in attendance.
- .3 Record minutes of meetings will be prepared by the Departmental Representative and sent to participants and stakeholders, within three (3) days of completion.
- .4 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Field observations, problems, conflicts.
 - .3 Problems which impede construction schedule.
 - .4 Review of off-site fabrication delivery schedules.
 - .5 Corrective measures and procedures to regain projected schedule.
 - .6 Revision to construction schedule.

- .7 Maintenance of quality standards.
- .8 Review proposed changes for effect on construction schedule and on completion date.
- .9 Other business.

1.3 COORDINATION MEETINGS

- .1 Schedule and administer coordination meetings, every two weeks throughout the progress of work or at the request of the Departmental Representative and the management thereof. The contractor and key subcontractors must attend to plan, organize and coordinate future activities, various trades on site.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting three days in advance of meeting date to Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants, affected parties not in attendance and the Departmental Representative.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 REFERENCES

- .1 Definitions:
 - .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
 - .2 Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.
 - .3 Baseline: original approved plan (for Project, work package, or activity), plus or minus approved scope changes.
 - .4 Cash Flow: projection of progress payment requests based on cash loaded construction schedule.
 - .5 Completion Milestones: they are firstly Substantial Completion and secondly Final Certificate.
 - .6 Constraint: applicable restriction or limitation, either internal or external to project, that will affect performance of Project. Factors that affect activities can be scheduled.
 - .7 Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.
 - .8 Critical Activity: any activity on a critical path.
 - .1 Most commonly determined by using critical path method.
 - .9 Critical Path: sequence of activities that determines duration of Project. Generally, it is the longest path through Project.
 - .1 Usually defined as those activities with float less than or equal to specified value, often zero.
 - .10 Critical Path Method (CPM): network analysis technique used to determine the amount of scheduling flexibility (amount of float) on various logical network paths in Project schedule network, and to determine the minimum total Project duration.
 - .11 Data Date: date through which project status and progress were last determined and reported for analyses, such as scheduling and performance measurements.
 - .12 Duration: total number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element.
 - .1 Usually expressed as workdays or work weeks.
 - .13 Early Finish Date: in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule constraints.
 - .1 Early finish dates can change as Project progresses and changes are made to Project plan.
 - .14 Early Start Date: in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network logic and schedule constraints.
 - .1 Early start dates can change as Project progresses and changes are made to Project Plan.
 - .15 Finish Date: point in time associated with activity's completion.
 - .1 Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.
 - .16 Float: amount of time that activity may be delayed from its early start without delaying Project finish date.
 - .1 This resource is available to both Departmental Representative and Contractor.
 - .17 Impact Analysis: schedule analysis technique that adds a modeled delay to an accepted construction schedule to determined possible outcome of that delay on project completion.
 - .18 Lag: modification of logical relationship that directs delay in successor activity.
 - .19 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).
 - .20 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).
 - .21 Lead: modification of logical relationship that allows acceleration of successor task.
 - .22 Logic Diagram: see Project network diagram.

- .23 Master Schedule: summary-level schedule that identifies major deliverable; work breakdowns structure and key milestones.
 - .24 Milestone: significant point or event in Project, usually completion of major deliverable.
 - .25 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.
 - .26 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.
 - .27 Project Control System: fully computerized system utilizing commercially available software packages.
 - .28 Project Network Diagram: schematic display of logical relationships of Project activities.
 - .1 Always drawn from left to right to reflect Project chronology.
 - .29 Project Plan: formal, approved document used to guide both Project execution and Project control.
 - .1 Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines.
 - .2 Project plan may be summary or detailed.
 - .30 Project Planning: development and maintenance of Project Plan.
 - .31 Project Planning, Monitoring and Control System: overall system operated to enable monitoring of Project Work in relation to established milestones.
 - .32 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
 - .33 Quantified days duration: working days based on 5 day work week, discounting statutory holidays.
 - .34 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
 - .35 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
 - .36 Work Breakdown Structure (WBS): deliverable-oriented hierarchical decomposition of Work to be executed by contractor to accomplish project objectives and create required deliverables. It organizes and defines total scope of Project. Each descending level represents an increasingly detailed definition of Project Work. WBS is decomposed into Work packages.
- .2 Reference Standards:
- .1 Project Management Institute (PMI Standards)
 - .2 A Guide to the Project Management Body of Knowledge (PMBOK Guide) - Fourth Edition.
 - .3 Practice Standard for Scheduling - 2011.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Project Meeting:
 - .1 Meet with Departmental Representative within five (5) working days of Award of Contract date, to establish Work requirements and approach to project construction operations.
 - .2 Participate in regular project progress meetings with Departmental Representative specifically intended to discuss update of detailed schedule and contract changes.
- .2 Scheduling:
 - .1 Planning: ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made.
 - .2 Ensure project schedule efficiencies through monitoring of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.
 - .3 Monitor sufficiently often so that causes of delays can immediately be identified and removed.
- .3 Project monitoring and reporting:
 - .1 Keep team aware of changes to schedule, and possible consequences as project progresses.
 - .2 Use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.

- .3 Begin narrative reporting with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.
- .4 Critical Path Method (CPM) Requirements:
 - .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
 - .2 Revise Master Schedule and Detail Schedule deemed impractical by Departmental Representative and resubmit for approval.
 - .3 Change to Contract Duration:
 - .1 Acceptance of Master Schedule and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract.
 - .2 Duration of Contract may only be changed through bilateral Agreement.
 - .4 Consider Master Schedule and Detail Schedule deemed practical by Departmental Representative, showing Work completed in less than specified Contract duration, to have float.
 - .5 First Milestone on Master Schedule and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.
 - .6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.
 - .7 Substantial Completion with "LF" constraint equal to calculated date.
 - .8 Calculations on updates to be such that if early finish of Substantial Completion falls later than specified Contract duration then float calculation to reflect negative float.
 - .9 Delays to non-critical activities, those with float may not be basis for time extension.
 - .10 Do not use float suppression techniques such as : software constraints, preferential sequencing, special lead/lag logic restraints, extended activity times, imposed dates other than required by Contract.
 - .11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated.
 - .1 Specified contract duration has been predicated assuming normal amount of adverse weather conditions.
 - .12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration.
 - .1 Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
 - .13 Arrange participation on and off site of subcontractors and suppliers, as required by Departmental Representative, for purpose of network planning, scheduling, updating and progress monitoring.
 - .1 Approvals by Departmental Representative of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.
 - .14 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.
- .3 Submit Project Control System to Departmental Representative for approval.
 - .1 Failure to comply with each required submission, may result in progress payment being withheld in accordance with Federal Government's GC 5 Terms of Payment.
- .4 Submit letter ensuring that schedule has been prepared in co-ordination with major sub-contractors.
- .5 Refer to article "PROGRESS MONITORING AND REPORTING" of this specification Section for frequency of Project control system submittals.
- .6 Submit impact analysis of schedule for changes that result in extension of contract duration.
 - .1 Include draft schedule update and report as outlined in article "PROGRESS MONITORING AND REPORTING".

- .7 Submit Project planning, monitoring and control system data [as part of initial schedule submission and monthly status reporting in following form:
 - .1 Files in original scheduling software MS Project (also submit PDF format) containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.
 - .2 Master Schedule Bar Chart.
 - .3 Construction Detail schedule Bar Chart.
 - .4 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
 - .5 Criticality report listing activities and milestones with total float used as first sort for ready identification of critical and near critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.
 - .6 Progress report in early start sequence, listing for each trade, activities due to start, underway, or finished within 2 months from monthly update date. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.

1.4 QUALITY ASSURANCE

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

1.5 WORK BREAKDOWN STRUCTURE (WBS)

- .1 Prepare construction Work Breakdown Structure (WBS) within ten (10) working days of Award of Contract date.
 - .1 Develop WBS through at least five levels: project, stage, element, sub-element and work package.

1.6 PROJECT MILESTONES

- .1 Mandatory and recommended project milestones form targets for both Master Schedule and Detail Schedule of CPM construction network system.
 - .1 Obligatory milestone: substantial completion for each phase.
 - .2 Obligatory milestone: date when Departmental Representative may proceed with moves.
 - .3 Recommended milestone: completion of excavation work.
 - .4 Recommended milestone: completion of superstructure.
 - .5 Recommended milestone: date when building will be closed and weatherproofed.
 - .6 Obligatory milestone: mechanical commissioning.
 - .7 Recommended milestone: completion of exterior work.
 - .8 Obligatory milestone: work completion certificate.

1.7 MASTER SCHEDULE

- .1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.
- .2 Prepare comprehensive construction Master Schedule (CPM logic diagram) and dependent Cash Flow Projection within ten (10) working days of finalizing Agreement to confirm validity or alternates of identified milestones.
 - .1 Master Schedule will be used as baseline.
 - .1 Revise baseline as conditions dictate and as required by Departmental Representative.
 - .2 Departmental Representative as Project progresses will review and return revised baseline within ten (10) work days.
- .3 Reconcile revisions to Master Schedule and Cash Flow Projections with previous baseline to provide continuous audit trail.
- .4 Initial and subsequent Master Schedule will include:

- .1 Electronic files containing schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.
- .2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
- .3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.
- .4 Actual/projected monthly cash flow: expressed monthly and shown in both graphical and numerical form.

1.8 DETAIL SCHEDULE

- .1 Provide detailed project schedule (CPM logic diagram) within ten (10) working days of Award of Contract date showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:
 - .1 Award.
 - .2 Shop Drawings, Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Excavation.
 - .6 Backfill.
 - .7 Building Footings.
 - .8 Masonry.
 - .9 Interior Architecture (Walls, Floors and Ceiling).
 - .10 Hardware, doors and frames.
 - .11 Signage.
 - .12 Plumbing.
 - .13 Lighting.
 - .14 Electrical.
 - .15 Access control and security system.
 - .16 Piping.
 - .17 Controls.
 - .18 Heating, Ventilating, and Air Conditioning.
 - .19 Millwork.
 - .20 Fire Systems.
 - .21 Supplied Equipment - Long Delivery Items.
 - .22 Delivery dates requested in the case of materials provided by the Departmental Representative.
 - .23 Cuts services and their durations for connection to existing facilities.
- .2 Detail CPM schedule to cover the entire duration of the project. Each activity duration approximately ten (10) days.
 - .1 Show remaining activities for CPM construction network system up to Final Certificate and develop complete detail as project progresses.
 - .2 Detail activities completely and comprehensively throughout duration of project.
- .3 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Schedule.
- .4 Clearly show sequence and interdependence of construction activities and indicate:
 - .1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
 - .2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
 - .1 Time for submittals, resubmittals and review.
 - .2 Time for fabrication and delivery of manufactured products for Work.
 - .3 Interdependence of procurement and construction activities.
 - .4 Include sufficient detail to assure adequate planning and execution of Work.

- .5 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.
- .6 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.
- .7 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

1.9 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

- .1 Allow 10 work days for review by Departmental Representative of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to Departmental Representative for review within 5 work days.
- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.
- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.10 COMPLIANCE WITH DETAIL SCHEDULE

- .1 Comply with reviewed Detail Schedule.
- .2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after receipt of approval by Departmental Representative.
- .3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
- .4 Submit to Departmental Representative, justification, project schedule data and supporting evidence for approval of extension to Contract completion date or interim milestone date when required. Include as part of supporting evidence:
 - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.
 - .2 Prepared schedule indicating how change will be incorporated into the overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
 - .3 Other supporting evidence requested by Departmental Representative.
 - .4 Do not assume approval of Contract extension prior to receipt of written approval from Departmental Representative.
- .5 In event of Contract extension, display in Detail Schedule that scheduled float time available for work involved has been used in full without jeopardizing earned float.
 - .1 Departmental Representative will determine and advise Contractor number of allowable days for extension of Contract based on project schedule updates for period in question, and other factual information.
 - .2 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.

1.11 PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once a week to establish progress on each current activity shown on applicable networks.

- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
- .3 Perform Detail Schedule update weekly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Submit to Departmental Representative copies of updated Detail Schedule.
- .6 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .7 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
 - .1 Description of progress made.
 - .2 Pending items and status of: shop drawings, change orders and possible time extensions.
 - .3 Status of Contract completion date and milestones.
 - .4 Current and anticipated problem areas, potential delays and corrective measures.
 - .5 Review of progress and status of Critical Path activities.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 GENERAL

1.1 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 This section specifies the requirements and general procedures for the submission of shop drawings, product descriptions and samples by the Contractor to the Departmental Representative, for verification. Other additional special requirements are described in the appropriate sections of divisions 02 to 33.
- .3 Do not proceed with Work affected by submittal until review is complete.
- .4 Reproductions of drawings prepared by professionals working on the project and submitted as drawings will be refused.
- .5 Present shop drawings, product data, samples and mock-ups in measure unit corresponding to drawings prepared by the professionals.
- .6 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .7 Notify Departmental Representative , in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .9 Make changes Departmental Representative deems appropriate to contract documents and resubmit documents and samples as directed by Departmental Representative.
- .10 When resubmitting documents and samples, notify Departmental Representative in writing of the changes other than those required by the Departmental Representative.

1.2 SHOP DRAWINGS

- .1 Submit original drawings prepared by Contractor, Subcontractor, Supplier or Distributor illustrating the part of the work concerned, manufacturing details, layout, installation details and assembly prescribed in associated sections, as well as related elements for the project.
- .2 Identify details using sheet numbers and contract drawing sketches.
- .3 A copy will be returned to Contractor after verification. The Contractor must make 7 copies and distribute to parties (Owner, professionals, consultants, subcontractors, etc.) and pay for the cost. Distribution will be based on process established at first construction site meeting. Product data and shop drawings in "Letter" (21,59cm x 27,94cm) or "Legal" (21,59cm x 35,56cm) format will be submitted in digital format (PDF).Delete information that does not apply to the project.
- .4 If upon examination by the Departmental Representative there are no mistakes or omissions and only minor corrections are made, copies will be returned and manufacturing and installation will be allowed. However, if shop drawings are rejected, an annotated copy will be returned and shop drawings will be submitted again following the same procedure before manufacturing and installation will be allowed.

1.3 PRODUCT DESCRIPTION

- .1 The above documentation must meet the following requirements for approval:
 - .1 Products meets characteristics specified in contract documents.
 - .2 They must not contain information unrelated to the project.
 - .3 Basic information must be completed by additional project information.
 - .4 Must indicate required dimensions and clearances.

1.4 SAMPLES

- .1 Samples: materials, quality, finish and installation method.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Where colour, pattern or texture is criterion, submit full range of samples.
- .4 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 MOCKUPS

- .1 Samples: work carried out on site using the materials and installation method ouvrages réalisés sur place en employant les matériaux et le mode d'exécution prescrits.
- .2 Produce mockups in areas deemed acceptable by Professional.
- .3 Notify Departmental Representative in writing when product mock-ups are submitted of discrepancies over contract requirements.
- .4 Submit entire range of sample when colour, pattern or texture is required.
- .5 Once verified and approved, mockups will serve as quality standard for the project.

1.6 VERIFICATION OF DOCUMENTS

- .1 Verify shop drawings, product characteristics and samples before submitting to professionals.
- .2 Verify:
 - .1 Measurements taken on site.
 - .2 Execution criteria.
 - .3 Catalogue numbers and other related data.
- .3 Correspond submitted documents with requirements of project and contract documents. Drawings will not be approved one by one. Verification will be done when all related drawings are submitted.
- .4 Examination of the shop drawings is intended solely to verify compliance with general concept of data indicated on the drawings.
- .5 Contractor remains liable for errors and omissions contained in submitted documents, even if the professional has verified the documents.
- .6 Contractor remains liable for discrepancies with document requirements, even if the professional has verified the documents, except if professional expresses acceptance of specific discrepancies.
- .7 When submitting documents, notify the Professional in writing of discrepancies in submitted documents.
- .8 Do not distribute copies until approved by the Professional.

1.7 SUBMISSION REQUIREMENTS:

- .1 Covering letter, in two copies, must contain the following information:
 - .1 Date.
 - .2 Project title and number.
 - .3 Name and address of Contractor.
 - .4 The number for each shop drawing, product descriptions and samples submitted.
 - .5 All other useful information.
- .2 Submitted documents must include:
 - .1 Presentation date of original documents and revision.
 - .2 Project designation and number.
 - .3 Name:
 - .1 Contractor.
 - .2 Subcontractor.
 - .3 Supplier.

- .4 Manufacturer.
- .5 Retailers.
- .4 Identification of product or material.
- .5 Matching to adjacent work.
- .6 Dimensions measured on site, clearly identified.
- .7 Specification number.
- .8 Applicable standards, and number.
- .9 Contractor's seal with initials or signature attesting that documents have been revised and dimensions measured on site have been revised, verified and comply with contract documents.
- .3 Details of appropriate portions of Work as applicable::
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams
 - .10 Relationship to adjacent work.
- .4 Allow Professionals 10 days to examine each batch of documents submitted.
- .5 Once Professional has verified documents, distribute copies.
- .6 Reissue drawings within a period of five (5) days when refused or identified to resubmit.
- .7 Once product has been accepted, submit documents in "Letter" (21,59cm x 27,94cm) format for binders.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 31 24 13 – Roadway Embankments.
- .2 Section 21 11 16.01 – Granular Sub-Base.
- .3 Section 32 12 16 – Asphalt Paving.

1.2 REFERENCES

- .1 Ministère des transports du Québec (MTQ)
 - .1 Collection “Normes – Ouvrages routiers – Tome V – Signalisation routière” (*Standards – Roadworks – Vol. V – Signalling*) - 2015.
 - .2 Cahier des charges et devis généraux – Infrastructure routières – Construction et réparation – 2016 (terms of reference and general project specifications - Road infrastructure, construction and repair.
- .2 U.S. Department of Transportation
 - .1 Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD) – 2009 R2012.
- .3 New York State department of transportation
 - .1 New York State Supplement to the Manual on Uniform Traffic Control Devices for Streets and Highways 2009.
 - .2 New York State Standard Sheet
 - .1 Group ID 619 – Work Zone Traffic Control.
 - .2 Group ID 645 – Signs.

1.3 DOCUMENTS/SAMPLES TO BE SUBMITTED

- .1 Obtain authorizations from the competent authorities before starting work.
 - .1 In Québec, obtain a highway permit from the Ministère des transports du Québec.
 - .2 In the State of New York, obtain a highway work permit.
 - .3 Pay the charges for any authorizations, including sureties required by the authorities.
 - .4 Send a copy of permits/authorizations to the Departmental Representative.
 - .5 Work carried out on land belonging to the Crown does not require permits from the Ministère des transports du Québec or the New York State Department of Transportation. However, any work or interventions required beyond Crown property does require such permits.
- .2 Two weeks before the work begins, submit signs and signals to the Departmental Representative for approval:

- .1 Signs and signals must comply with the standards of the state or province in which the signalling is required;
 - .1 Province of Québec: in compliance with the MTQ Tome V – “Signalisation routière” (*Standards – Roadworks – Vol. V – Signalling*).
 - .2 State of New York: in compliance with the followings:
 - .1 Manual of Uniform Traffic Control Devices (MUTCD).
 - .2 New York State Supplement to the MUTCD.
 - .3 New York State Standard Sheet – Group ID 619 – Work Zone Traffic Control.
 - .4 New York State Standard Sheet – Group ID 645 – Signs.
- .2 Signs and signals must bear the seal of an engineer who is a member of the Ordre des ingénieurs du Québec or by a professional engineer entitled to practice in the State of New York, depending on the location for which the signs and signals are required.
- .3 Although standardized drawings of short- and long-term signage and signalling allow the use, of directional arrows (MTQ-D-130-1) or a signal arrow under certain circumstances, a luminous signal arrow remains mandatory.
- .4 Signs and signals on Crown property must comply with the requirements and standards of Volume V of the Ministère des transports du Québec.
- .3 For site setup, phase changes and takedown, the contractor shall present a work plan containing the following details:
 - .1 Contact information for the person in charge of signs and signals on the site;
 - .2 List of personnel;
 - .3 List of equipment and vehicles used;
 - .4 The work method developed for setup, phase changes and the removal of traffic control devices;
 - .5 The work schedule, showing periods when no work is to be carried out;
 - .6 Modifications and measurements envisaged for signs and signals during periods in which there is no work;
 - .7 Planned changes to speed limits.

1.4 TRAFFIC LANE CLOSURE REQUEST

- .1 To carry out work requiring traffic lane closure(s), an application must be sent to the Departmental Representative not later than 7 days before the start of the work.

1.5 OBSTRUCTIONS PROHIBITED

- .1 Obstructing traffic lanes, whether or not a bypass lane is provided, is prohibited during the following periods:
 - .1 During the months of July and August;
 - .2 On a statutory holiday (Canada and the United States);
 - .3 Saturdays and Sundays following a holiday Friday or preceding a holiday Monday.

1.6 TRAFFIC CONTROL MANAGER

- .1 The contractor shall designate a traffic control manager with the required certification as stipulated in CCDG, art. 10.3.3.1.
- .2 The traffic control manager must have a working mobile telephone at all times, including a message handling system. The telephone number must remain the same for the entire duration of the contract.
- .3 Whenever the traffic control manager observes nonconformities or defects, he shall correct them and report them immediately to the Departmental Representative. In addition, he shall submit to the Departmental Representative for approval the corrective actions to be taken and the time required.
- .4 In the event of a defective signalling situation or damage to signage, the traffic control manager must be able to be contacted by telephone at all times (24 hours a day, 7 days a week) by the Departmental Representative or a police officer within a maximum of 15 minutes. Following this call, the traffic control manager will have one hour to make the necessary corrections and restore the situation.

1.7 PERSONNEL ASSIGNED TO TRAFFIC CONTROL AND SIGNALLING

- .1 General
 - .1 Personnel designed to signalling must meet the requirements of the CCDG, art. 10.3.3.2.
 - .2 When replacing people assigned to traffic control and signalling or when assigning new workers to this task, the contractor shall supply a copy of a certificate showing that they have successfully completed the training required prior to taking up their duties on the site.
 - .3 All employees must wear equipment compliant with the requirements of the MTQ standards – Roadworks – Vol. V – Signalling.
- .2 Flaggers
 - .1 The contractor shall ensure that personnel assigned to traffic control are positioned safely. A flagger may under no circumstances be assigned to tasks other than traffic control. In addition, the contractor shall ensure that signals given to road users to direct traffic are clear and compliant.
 - .2 The contractor shall ensure reliable, clear and accurate communication between flaggers. When the site configuration or traffic conditions change during the course of the work, the need for flaggers to be present will have to be re-assessed and, if required, they must be replaced by other traffic flow maintenance measures (e.g.: roadwork traffic control signals, a barrier for the flagger, or an escort vehicle).

1.8 PUBLIC TRAFFIC PROTECTION

- .1 The supply, installation, handling and dismantling of site signs and signals must be carried out by a company specializing in this type of work.
 - .1 Site signs and signals installed in the United States must be carried out by a company registered in the United States.

- .2 Site signs and signals installed in Canada must be carried out by a specialized company registered in the Canada.
- .2 Comply with the requirements of current laws, regulations and orders governing traffic and the use of roadways on which it is necessary to carry out work or transport materials and equipment.
- .3 When work is carried out on a roadway that is in service, execute the following.
 - .1 Arrange equipment in such a way as to cause as little inconvenience and danger to users as possible.
 - .2 Keep equipment together as much as is possible, preferably on the same side of the roadway.
 - .3 Do not leave equipment on the roadway during the night.
- .4 No traffic lane may be closed without written authorization from the Departmental Representative.
 - .1 Before diverting traffic, install appropriate signalling, in compliance with standards applicable in the State or province where the work is being carried out. Keep the road surface level, free of potholes, and wide enough to allow use of the required number of traffic lanes.
 - .2 Temporary lanes must be at least 7 m wide whenever traffic in the work area and in detours is two-way.
 - .3 Every temporary lane must be at least 3.3 m wide when traffic in the work area and in detours is one-way. The number of lanes required at each obstacle's location is indicated on the plans.
- .5 Create temporary or detour lanes, as indicated on plans and specifications, to allow traffic to bypass the site.
 - .1 Level detour lanes in accordance with Section 31 24 13 - *Roadway Embankments*.
 - .2 Lay and compact the granular sub-base in accordance with Section 32 11 16.01 - *Granular Sub-Base*.
 - .3 Lay and compact the bituminous concrete paving, if required, in accordance with Section 32 12 16 - *Asphalt Paving*.
 - .4 Lay and compact the mixed asphalt road surface in accordance with Section 32 12 16 - *Asphalt Paving*.
- .6 Maintain temporary or detour lanes.

1.9 PRE-SIGNALLING AT APPROACHES TO THE CONSTRUCTION SITE

- .1 In addition to the pre-signalling requirements in Volume V – *Signalisation routière*, the contractor shall provide pre-signalling in accordance with the following specifications. Provide equivalent signalling on the American side:
 - .1 Add a "Duration of Work" sign (T-210) indicating "Autoroute 15, Poste frontalier de St-Bernard de Lacolle du mois XX au mois XX" and "Highway 15, St-Bernard-de-Lacolle Border Crossing from month XX to month XX".
 - .2 Add a "Distance before reaching the work area" sign 2 km ahead of the work.
 - .3 Add a variable message sign 3 km ahead of the work.

- .4 Signs shall be written in French and English.

1.10 INFORMATION AND WARNING DEVICES

- .1 Provide and install luminous arrows to indicate the presence of a construction zone or any other temporary situation arising out of the performance of the work requiring a reaction or response from road users, and keep them maintained.
- .2 Provide and install signals, delineators, barricades and other warning devices, in accordance with standards applicable in the State or province where the work is being carried out.
- .3 Maintain all traffic control devices in the following manner.
 - .1 Check signs and signals every day to ascertain that they are legible, in good condition, and in the right position, and that they meet needs. Clean, repair or, if applicable, replace the signs or signals, in order to maintain their clarity and reflectance.
 - .2 Remove or cover signs that do not apply to existing situations, since situations can vary from one day to the next.

1.11 REGULATING PUBLIC TRAFFIC

- .1 Provide on-site services of competent flaggers whose training and equipment comply with Volume V of the Ministère des transports du Québec for the situations below.
 - .1 When public traffic must bypass vehicles or equipment that completely or partly block the roadway.
 - .2 When it is necessary to establish a system of closed lanes and one-way traffic in a construction zone, when traffic is heavy, when approach speeds are high, and when the signalling system is out of order.
 - .3 When workers and equipment are at work on the roadway, beyond the crest of a hill, after a sharp bend or at any other places where drivers cannot otherwise be effectively warned.
 - .4 When temporary safety measures are necessary during the installation or removal of traffic control devices.
 - .5 When emergency safety measures are necessary because traffic control devices cannot be obtained soon enough.
 - .6 In all cases where other traffic control devices do not guarantee complete protection of workers, equipment and public traffic.
 - .7 At each end of construction zones where lead vehicles must show the way forward.

1.12 SPECIAL SIGNS

- .1 The contractor shall supply and install special signs of a total area of 40 m².
- .2 A special sign is a sign that shows text indicating the itinerary or a sign having at least one dimension greater than 1200 mm. All special signs required to inform road users are to be supplied, installed and removed by the contractor.
- .3 All special signs used in the framework of this contract must meet the requirements of the "*Dimensions des panneaux*" section in the "Indication" chapter of Volume V –

Signalisation routière. Special signs must be manufactured on request from the Departmental Representative.

- .4 A shop drawing of the sign must be supplied prior to manufacture.

1.13 Special signs are manufactured on request from the Departmental Representative and are not included at the standard signalling provided by the contractor.

1.14 MOBILE VARIABLE MESSAGE SIGNS (MOBILE VMSs)

- .1 Mobile variable message signs (mobile VMSs) are supplied by the contractor. The relocation, installation and maintenance of mobile VMSs are the contractor's responsibility.
- .2 Mobile variable message signs (mobile VMSs) must meet both the requirements of the "Panneaux à messages variables" section in the "Signaux lumineux" chapter of Volume V – *Signalisation routière* and the following requirements:
- .3 Have a full-matrix display of minimum 30 x 72 pixels, able to display alphanumeric characters 300 mm high, pictograms, or both simultaneously, and use yellow (amber) light-emitting diodes (LEDs). The NTCIP protocol must be used for transmissions from the control centre to the mobile VMS. A cellular modem with a static IP address, model Sixnet, IP SN 6701 or equivalent (4G LTE/3G/2G) must be supplied.
- .4 Have an autonomous solar-electric power supply. The accumulator system must allow the mobile VMS to operate continuously for 14 days without energy supply from the solar panels at average November temperatures at the place where the mobile VMS is installed. For the purposes of display calculation, the benchmark is 50% of the panel illuminated at 50% intensity. Photovoltaic modules (solar panels) must be fitted with a tilting and rotation mechanism to facilitate cleaning of panels and to secure optimal performance by aiming the panels at the best possible angle to the sun. The dimensions of panels must be sufficient to supply the accumulator system and meet the needs of the operational period from April 1 to November 30.
- .5 Include a system for fully recharging accumulators using a charger.
- .6 The main controller must perform the various diagnostics and return results on request to the control centre when there is a low-voltage warning.
- .7 Mobile VMSs must be fitted with a GPS tracking system option.

1.15 BICYCLE AND PEDESTRIAN TRAFFIC

- .1 The contractor shall maintain a corridor reserved for bicycle and pedestrian traffic and all measures necessary to ensure their safety.

1.16 TRAFFIC RESTRICTIONS

- .1 Maintain existing traffic conditions throughout the duration of the work. However, if construction work carried out under the terms of this contract so warrants, and provided that, in accordance with these specifications, measures approved by the Departmental Representative have been taken to protect and regularize public traffic, these conditions may be modified as follows.

- .1 Stretch located to the south of sector 5 (commercial posts) over a width of about 25m
 - .1 Carry out the work continuously in order to complete the work of laying pipes, backfilling and paving and restoration of the roadway within a 57-hour timeframe.
 - .2 Work is carried out from Friday 20: 00 P.M. to following Monday until 5:00 P.M.
 - .3 Commercial posts (3) will be closed during the work.
 - .4 Provide a detour for vehicles coming from the United States by making them take I-87 upstream of the work area. Vehicles then take the on-ramp northwest of sector 5 in order to travel to the sector 6 post (commercial operations) to be checked there.
- .2 Stretch located to the south of sector A (primary inspection line) over a width of about 55m.
 - .1 Work must be carried out from Monday to Friday inclusive, a duration of 5 days, maximum;
 - .2 Keep three (3) lanes 3.3 m wide open at all times;
 - .3 Paving work must be carried out no more than 24 hours following the end of pipe-laying work in this stretch.
 - .4 3 posts must remain operational at all times;
 - .5 The detour road (area indicated by the hatch markings) must remain operational during the work.
- .3 Stretch located to the south of sector E (traveller operations) over a width of about 30m.
 - .1 Access to the lane connecting A15 and A15 North must remain open during the work.
 - .2 Provide temporary access paths in crushed stone.
- .4 Stretch located across A15, over a width of about 25m.
 - .1 Work is authorized at night between 9:00 p.m. and 5:00 a.m. only.
 - .2 One (1) lane must remain open during the work.
 - .3 Carry out paving work within 24 hours following the end of pipe-laying work.
 - .4 Work must be performed within a period of 72 hours.
- .5 Stretch located to the south of sector 1 (filtration plant), in the reserved truck lane, over a width of about 18m.
 - .1 This lane may be completely closed for the duration of the work.
 - .2 Provide the required detour signalling so that vehicles take the existing reserved truck lane located south of the border.
 - .3 Piping, embankment and paving works must be carried out within a period of 72 hours.
- .6 Stretch located to the west of sector 2 (sanitary block), A15 North, over a width of about 25m.
 - .1 Work must be carried out continuously over five (5) days from Monday to Friday.
 - .2 Provide a temporary detour road for vehicles coming from sector A (primary inspection line) via the newly laid-out secondary inspection area. The detour road must be paved.

- .3 Provide a detour road for vehicles coming from the existing secondary inspection area (sector E) via the newly laid-out secondary inspection area. The detour road must be paved.
- .4 During the work, the contractor shall prevent access by vehicles to the light-framed shelter and prohibit parking along the detour road.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 All signalling materials and products must comply with the standards listed in Section 1.2, "References".

PART 3 EXECUTION

3.1 EXISTING ROAD SIGNS AND SIGNALS

- .1 For the duration of the contract, the contractor shall cover or uncover, move, temporarily withdraw or adjust road signs and signals located on the site, on its approaches and off the site whenever such signage contradicts temporary signs and signals or the configuration of the site.
- .2 In addition, before moving or temporarily withdrawing an existing sign or signal, the contractor shall produce a map of its precise location so that it can be reinstalled at the same place at the end of the work. Withdrawn material may not be stored in the side clearance area.

3.2 PRESENCE OF AN OBSTACLE AND SIDE CLEARANCE

- .1 The contractor shall carry out the work in such a way as to ensure that any obstacle present in the side clearance area bordering traffic lanes used by users is made safe throughout the term of the work.
- .2 In particular, machinery, tools and materials may not be parked or stored within the side clearance area outside working hours (evenings and nights, weekends and holidays) unless they are protected by a locking device.

3.3 ROUTE MARKERS

- .1 The contractor shall provide sufficient route markers to ensure that stopping sight distances are respected, vehicle movement is properly directed, access to the site or prohibited areas is effectively restricted, obstacles are clearly signalled, and the spacing at interchanges is reduced.
- .2 If a detour road or a maintenance road on the ground is not being used, the contractor shall bar access to it by placing markers 2 m from the edge of the shoulder, 5 m apart.
- .3 For the duration of the contract, the contractor shall place visual markers to indicate traffic lanes:

- .1 At places where the contractor removes safety dividers along embankments until such time as new safety dividers are installed and operational;
- .2 At new places where the installation of safety dividers is planned along embankments, whenever the difference in level between the traffic lane and the bottom of the slope of the embankment exceeds 2.5 m;
- .3 Where the difference in level between the traffic lane and the adjacent surface is greater than 200 mm.
- .4 During the work of complete or partial replacement of safety dividers, the contractor shall set up visual markers to indicate traffic lanes.
- .5 The contractor may use visual markers in place of safety dividers within a work shift. The contractor shall plan his work so that towards the end of the day's work, all visual markers are replaced by operational safety dividers.

3.4 MAINTENANCE OF TRAFFIC LANES

- .1 The contractor is responsible for maintenance of the traffic lanes used by users during the progress of the work. More explicitly, the contractor is responsible for:
 - .1 Repairing any holes more than 25 mm deep on the traffic lanes and shoulders from the moment he takes charge of the site and throughout the progress of the work;
 - .2 Removing debris;
 - .3 Ensuring good drainage of roadways;
 - .4 Carrying out the work necessary for proper maintenance of traffic flow.
- .2 The contractor is allowed a timeframe of 12 hours for carrying out maintenance work. This timeframe begins immediately after transmission of written notice by the Departmental Representative.
- .3 These requirements apply to the work area and the entire roadbed serving as detour roads and detour roads themselves.

3.5 Signalling on Highway 15

- .1 Sign posts shall be driven in the soil and not held in place using weights.

END OF SECTION

Part 1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 01-A1 – Contractor – Health, safety and environmental policy handbook.

1.2 REFERENCES

- .1 Province of Québec
 - .1 Loi sur la santé et la sécurité du travail L.R.Q., c. S-2.1 (Act respecting occupational health and safety).
 - .2 Code de sécurité pour les travaux de construction L.R.Q., c. S-2.1, r.4 (Safety code for the construction industry).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental representative, and the CNESST the site-specific prevention program, as outlined in the article "GENERAL REQUIREMENTS", at least 10 days prior to the start of work.
- .3 Departmental representative will review Contractor's site-specific prevention program and provide comments to Contractor within 10 days after receipt of the document. Revise plan as appropriate and resubmit to Departmental representative within 5 days after receipt of comments from Departmental representative. Departmental representative reserves the right not to authorize the start of work on the construction site as long as the content of the prevention program is not satisfactory. The Contractor shall then update his prevention program and resubmit it to the Departmental representative if the scope of work changes or if the working methods of the Contractor differ from his initial plans or for any other applicable new condition.
- .4 Departmental representative's review of Contractor's site-specific prevention program should not be construed as approval of the program and does not reduce the Contractor's overall responsibility for construction Health and Safety during the work.
- .5 Submit copies of Contractor's authorized representative's construction site health and safety inspection reports to Departmental representative, once a week minimum.
- .6 Submit to Departmental representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by Federal, Provincial and Territorial health and safety inspectors.
- .7 Submit to Departmental representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.
The investigation report shall contain at least the following:
 - .1 date, time and place of accident;
 - .2 name of sub-contractor involved in the accident;
 - .3 number of persons involved and condition of wounded;
 - .4 witness identification;
 - .5 detailed description of tasks performed at the time of the accident;
 - .6 equipment being used to accomplish the tasks performed at the time of the accident;
 - .7 corrective measures taken immediately after the accident;
 - .8 causes of the accident;
 - .9 preventive measures that have been put in place to prevent a similar accident.

- .8 Submit to Departmental representative WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittals. Contractor must also keep one copy of these documents on the construction site.
- .9 Medical Surveillance: where prescribed by legislation, regulation or prevention program, submit certification of medical surveillance for construction site personnel prior to commencement of Work, and submit additional certifications for any new construction site personnel to Departmental representative.
- .10 Submit to Departmental representative an on-site Emergency Response Plan at the same time as the prevention program. The Emergency Response plan must contain the elements listed in the article "GENERAL REQUIREMENTS" of this section.
- .11 Submit to Departmental representative copies of all training certificates required for the application of the prevention program, in particular (if applicable) for the following:
 - .1 first aid in the workplace and cardiopulmonary resuscitation;
 - .2 work likely to release asbestos dust (mandatory for all work where asbestos is present);
 - .3 work in confined spaces (mandatory for all work in confined spaces);
 - .4 lockout-tagout procedures (mandatory for all work requiring lockout);
 - .5 safely operating forklift trucks (mandatory for all forklift usage);
 - .6 safely operating elevating work platforms (mandatory for the use of all elevating platforms);
 - .7 any other requirement of Regulations or the safety program.In addition, the certifications of the *Cours de santé et sécurité générale pour les chantiers de construction* (General Health and Safety Training for Construction Sites) shall be available on demand on the construction site.
- .12 Engineer's plans and certificates of compliance: Contractor must submit to the Departmental representative and to the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST) a copy signed and sealed by engineer of all plans and certificates of compliance required pursuant to the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry) or by any other legislation or regulation or by any other clause in the specifications or in the contract. The Contractor must also submit a certificate of conformity signed by an engineer once the facility for which these plans were prepared has been completed and before a person uses the facility. A copy of these documents must be available on site at all times.

1.4 FILING OF NOTICE OF CONSTRUCTION SITE OPENING

- .1 Notice of construction site opening shall be submitted to the CNESST before work begins. A copy of such notice and acknowledgment of receipt from the CNESST shall be submitted to Departmental representative.
- .2 At the completion of all the work, a notice of construction site closing shall be submitted to the CNESST, with a copy to Departmental representative.
- .3 The Contractor shall assume the role of being the Principal Contractor in the limits of the construction site and elsewhere where he must execute work within the framework of this project. The Contractor shall recognize the responsibility of being the Principal Contractor of the project and identify himself as such in the notice of the construction site opening he provides to the CNESST.
- .4 The Contractor shall accept to divide and identify the construction site adequately in order to define time and space at all times throughout the course of the project.

1.5 HAZARD ASSESSMENT

- .1 The contractor must perform construction site specific safety hazard assessment related to project.

1.6 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental representative prior to commencement of Work.
- .2 Contractor's representative with decision power must attend any meetings at which construction site safety and health issues are to be discussed.
- .3 If it is anticipated that there will be 25 workers or more on the construction site at any given time, the Contractor shall set up a worksite committee and hold meetings as required by the Code de sécurité pour les travaux de construction (S-2.1, r. 4) (Safety code for the construction industry). A copy of the minutes of the meetings of the committee shall be provided to the Departmental representative no later than 5 days after the committee meeting.

1.7 REGULATORY REQUIREMENTS

- .1 Comply with all legislation, regulations and standards applicable to the construction site and its related activities.
- .2 Comply with specified standards and regulations to ensure safe operations on a site containing hazardous or toxic materials.
- .3 Always use the most recent version of the standards specified in the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry), notwithstanding the date indicated in that Code.

1.8 COMPLIANCE REQUIREMENTS

- .1 Comply with the Loi sur la santé et la sécurité du travail (L.R.Q., c. S-2.1) (Act Respecting Occupational Health and Safety) and the Code de sécurité pour les travaux de construction (S-2.1, r. 4.) (Safety code for the construction industry) in addition to respecting all the requirements of this specification manual.

1.9 RESPONSIBILITIES

- .1 The Contractor must acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the Loi sur la santé et la sécurité du travail (L.R.Q., ch. S-2.1) (Act Respecting Occupational Health and Safety) and the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry).
- .2 The Contractor must be responsible for health and safety of persons on construction site, safety of property on construction site and for the protection of persons adjacent to construction site and the environment to the extent that they may be affected by conduct of the work.
- .3 No matter the size or location of the construction site, the Contractor must clearly define the limits of the construction site by physical means and respect all specific regulation requirements applicable in this regard. The means chosen to define the limits of the construction site must be submitted to the Departmental representative.
- .4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific prevention Plan.

1.10 WORK PERFORMED BY EXTERNAL CONTRACTORS

- .1 On this construction site, it is anticipated that work will be performed by an external contractor that has not been hired by the Contractor:

- .1 communication cabling;
 - .2 office furniture;
 - .3 maintenance staff;
 - .4 snow removal (exclusion of construction site);
- .2 The Contractor must take the necessary steps to protect the health and safety of external contractors that have no contractual link with the Contractor but have been mandated by the Departmental representative to perform certain work. In return, these external contractors are obligated to submit to the authority of the Contractor (Principal Contractor). A subordination agreement must be signed by the Contractor and by each external contractor to this effect and submitted to the Departmental representative prior to the start of the work of each contractor (see the wording in the article HEALTH AND SAFETY SUBORDINATION AGREEMENT). Refer to form at the end of this section.

1.11 GENERAL REQUIREMENTS

- .1 Before undertaking the work, prepare a site-specific prevention program based on the hazards identified according to the article "HAZARD ASSESSMENT" and the article "RISKS INHERENT TO THE WORKSITE" in this section. Apply this program in its totality from the start of the project until demobilization of all personnel from the construction site. The prevention program shall take into consideration the specific characteristics of the project and cover all the work to be executed on the construction site.
- The safety program must include at least the following:
- .1 company safety and health policy;
 - .2 description of the stages of the work;
 - .3 total costs, schedule and projected workforce curves;
 - .4 flow chart of safety and health responsibilities;
 - .5 physical and material layout of the construction site;
 - .6 risk assessment for each stage of the work, including preventive measures and the procedures for applying them;
 - .7 identification of the preventive measures relative to the specific risks inherent to the worksite indicated in the article "RISKS INHERENT TO THE WORKSITE";
 - .8 identification of preventive measures for health and safety of employees and / or public works site as indicated in the article "SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC";
 - .9 training requirements;
 - .10 procedures in case of accident/injury;
 - .11 written commitment from all parties to comply with the safety program;
 - .12 construction site inspection checklist based on the preventive measures;
 - .13 emergency response plan which shall contain at least the following:
 - .1 construction site evacuation procedures;
 - .2 identification of resources (police, firefighters, ambulance services, etc.);
 - .3 identification of persons in charge of the construction site;
 - .4 identification of the first-aid attendants;
 - .5 communication organizational chart (including the person responsible for the site and the Departmental representative);
 - .6 training required for those responsible for applying the plan;
 - .7 any other information needed, in the light of the construction site's characteristics.
- If available the Departmental representative will provide the evacuation procedures to the Contractor who shall then coordinate the construction site procedure with that of the site and submit it to the Departmental representative.
- .2 Departmental representative may respond in writing, where deficiencies or concerns are noted in the prevention program and may request resubmission with correction of deficiencies or concerns.

- .3 In addition to the prevention program, during the course of the work the Contractor shall elaborate and submit to the Departmental representative specific written procedures for any work having a high risk factor of accident (for example: demolition procedures, specific installation procedures, hoisting plan, procedures for entering a confined space, procedures for interrupting electric power, etc.) or at the request of the Departmental representative.
- .4 The Contractor shall plan and organize work so as to eliminate the danger at source or ensure collective protection, thereby minimizing the use of personal protective equipment.
- .5 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work to be executed.
- .6 All mechanical equipment (for example, but not limited to: hoisting devices for persons or materials, excavators, concrete pumps, concrete saws) shall be inspected before delivery to the construction site. Before using any mechanical equipment, the Contractor shall obtain a certificate of compliance signed by a qualified mechanic dated less than a week prior to the arrival of each piece of equipment on the construction site; the certificate shall remain on the construction site and transmitted to the Departmental representative on demand.
- .7 Ensure all inspections (daily, periodic, annual, etc.) for the hoisting devices for persons or materials required by the current standards are carried out and be able to provide a copy of the inspection certificates to the Departmental representative on demand.
- .8 The Departmental representative can at all times, if he suspects a malfunction or the risk of an accident, order the immediate stop of any piece of equipment and require an inspection by a specialist of his choice.
- .9 The Departmental representative must be consulted for the location of storing gas cylinders and tanks on the construction site.

1.12 RISKS INHERENT TO THE WORKSITE

- .1 In addition to the risks related to the tasks to be carried out, personnel responsible for the execution of the work on the construction site will be exposed to the following risks, inherent to the area where the work will be executed. Without limiting his prevention program to these, the Contractor shall also include these elements in his prevention program, without limitation ;
 - .1 Refer to "Hazardous materials management", concerning the presence and location of contaminants on the worksite ;
 - .2 Operation of the Border crossing (24 hours /7 days);
 - .3 Proximity of work site with 15S highway;
 - .4 Closed spaces;
 - .5 Overhead power lines;
 - .6 Underground services (electricity, gas, steam, water, etc.);
 - .7 Works by phases.

1.13 SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC

- .1 The worksite is occupied by the Departmental representative for the duration of the work period. Refer to section 01 11 01 – summary of work, concerning the sequence of work.
- .2 These requirements must be included in the Contractor's site-specific safety plan as well as any other measures provided by the Contractor to protect the health and safety of employees and / or the public on the site.

1.14 UNFORESEEN HAZARDS

- .1 Whenever a source of danger not defined in the specifications or identified in the preliminary construction site inspection arises as a result of or in the course of the work, the Contractor must immediately suspend work, notify the person responsible for health and safety on the construction site, take appropriate temporary measures to protect the workers and the public and notify Departmental representative, both verbally and in writing.

Then the Contractor must do the necessary modifications to the prevention program or apply the security measures required in order to resume work.

1.15 PERSON IN CHARGE OF HEALTH AND SAFETY

- .1 If the construction site meets the requirements of article 2.5.3 of the Code de la sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the construction industry), the Contractor needs to hire a competent person authorized as a safety officer and appoint this person full time from the beginning of the work. This person's tasks shall solely be dedicated to the management of health and safety on the construction site. This safety officer must have the following qualifications:
 - .1 have a safety officer certificate issued by the CNESST since at least five (5) years;
 - .2 have site-related working experience specific to the activities associated with the present project;
 - .3 have working knowledge of occupational health and safety regulations in the workplace;
 - .4 be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter the construction site to perform work;
 - .5 be responsible for implementing, enforcing in detail and monitoring site-specific Contractor's Health and prevention program;
 - .6 be on construction site at all times during execution of work;
 - .7 inspect the work and ensure compliance with all regulatory requirements and those indicated in the contract documents or the site-specific prevention program.
 - .8 Keep a daily log of actions taken and submitting a copy to Departmental representative each week.

The safety officer's certificate shall be submitted to the Departmental representative before the start of the work.
- .2 When the hiring of a safety officer is not required or if this person is hired by the Departmental representative, the Contractor shall designate a competent person to supervise and take responsibility for health and safety, no matter the size of the construction site or how many workers are present at the workplace. This person shall be on construction site at all times and be able to take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the construction site and likely to be affected by any of the work. The Contractor shall submit the name of this person to the Departmental representative before the start of work.

1.16 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on construction site in accordance with Acts and Regulations of the Province, and in consultation with Departmental representative.
- .2 At a minimum, the following information and documents must be posted in a location readily accessible to all workers:
 - .1 notice of construction site opening;
 - .2 identification of principal Contractor;

- .3 company OSH policy;
- .4 site-specific prevention program;
- .5 emergency plan;
- .6 minutes of worksite committee meetings;
- .7 names of worksite committee representatives;
- .8 names of the first-aid attendants;
- .9 action reports and correction notices issued by the CNESST.

1.17 INSPECTION OF THE CONSTRUCTION SITE AND CORRECTION OF NON-COMPLIANCES

- .1 Inspect the construction site and complete the construction site inspection checklist and submit it to the Departmental representative in accordance with the article "ACTION AND INFORMATIONAL SUBMITTALS" in this section.
- .2 Immediately take all necessary measures to correct any situations deemed non-compliant during the inspections mentioned in the previous paragraph or noticed by the authorities having jurisdiction or the Departmental representative or his agent.
- .3 Submit to Departmental representative written confirmation of all measures taken to correct the situation in case of non-compliance in matters pertaining to health and safety.
- .4 The Contractor shall give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order cessation and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and construction site workers and environmental protection take precedence over cost and scheduling considerations.
- .5 The Departmental representative or his agent may order cessation of work if the Contractor does not make the corrections needed to conditions deemed non-compliant in matters pertaining to health and safety. Without limiting the scope of the preceding articles, the Departmental representative may order cessation of work if, in his view, there is any hazard or threat to the safety or health of construction site personnel or the public or to the environment.

1.18 PREVENTION OF VIOLENCE

- .1 Health and safety management of Public Works and Government Services Canada construction sites includes the implementation of measures designed to protect the psychological health of all persons who access the construction site where the work is taking place. Consequently, in addition to physical violence, verbal abuse, intimidation and harassment are not tolerated on the construction site. Any person who demonstrates such actions or behaviors will receive a warning and/or could be definitely expelled from the construction site by the Departmental representative.

1.19 BLASTING

- .1 Blasting or other use of explosives is not permitted, unless to get written instruction by Departmental representative.
- .2 Any operation involving explosives must be carried out under the supervision of a qualified shot-firer.
- .3 The purchase, carriage, storage and use of explosives must comply with all applicable federal and provincial legislation:

- .1 Canada: Explosives Act (E-17)¹, Explosives Regulations (C.R.C. CH. 599), Standard for Storage of Blasting Charges and Detonators, Transportation of Dangerous Goods Act and Regulations.
- .2 Québec: Loi sur les explosifs (Explosives Act) (E-22), Règlement d'application sur les explosifs ((E-22, r.1), Code de sécurité pour les travaux de construction (S-2.1, r.4), (Safety code for the Construction Industry) Règlement sur le transport des matières dangereuses (Transportation of Dangerous Goods Regulations).
- .4 Contractor shall obtain all permits required pursuant to the legislation and regulations referred to above and keep copies on hand at the construction site.
- .5 Contractor shall facilitate inspection of the construction site, stored explosives and vehicles used to transport explosives by any government representatives or police officers whose jurisdiction encompasses explosives.

1.20 POWDER ACTUATED DEVICE

- .1 Use powder actuated devices only after receipt of written permission from Departmental representative.
- .2 Any person using an explosive actuated tool shall hold a training certificate and meet all requirements of Section 7 of the Code de sécurité pour les travaux de construction (S- 2.1, r. 4). (Safety code for the construction industry)
- .3 Any other explosive-actuated device shall be used in accordance with the manufacturer's directions and applicable standards and regulations.

1.21 USE OF PUBLIC ROADS

- .1 Where it is necessary to encroach on a public road for operational reasons or to ensure the security of the workers, the occupants or the public (for example: the use of scaffolding, cranes, excavation work, etc.), the Contractor shall obtain at his own expense any authorizations and permits required by the competent authority.
- .2 The Contractor shall install at his own expense any signage, barricades or other devices needed to ensure the safety and security of the public and the Contractor's own facilities.

1.22 LOCKOUT-TAGOUT

- .1 For all work on electrically or otherwise energized equipment, the Contractor shall draw up and implement a general lockout-tagout procedure and submit it to the Departmental representative.
 - .2 Supervisors and all workers concerned by work requiring lockout-tagout must have received training on lockout-tagout procedures by a recognized organization; Contractor shall submit training certificates to the Departmental representative.
 - .3 Before starting the lockout-tagout procedure of a piece of equipment on an occupied site, Contractor must coordinate his work with the representative of the site if the interruption of the power sources can have an impact on the operations of the site or on its occupants.
 - .4 Contractor must designate a qualified person as responsible for the lockout-tagout and must make sure that that person prepares a lockout-tagout data sheet for each piece of equipment involved. The lockout-tagout data sheet must be submitted to the Departmental representative at least 48 hours before the beginning of the work. The Departmental representative will review the data sheet with the representative of the site if the work takes place in an existing building. The data sheets for lockout-tagout must contain at least the following information:
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- .1 description of work to carry out;
 - .2 identification, description and location of the circuit and/or piece of equipment to lockout-tagout;
 - .3 identification of energy sources that feeds the piece of equipment;
 - .4 identification of each cutout point;
 - .5 sequence of lockout-tagout and the release of residual energy as well as the sequence of unlocking;
 - .6 list of material needed for the lockout-tagout;
 - .7 method of verification of zero energy implementation;
 - .8 name and signature of the person who prepared the data sheet.
When required by the Departmental representative, Contractor must record all this information on the site's representative form.
- .5 At the time of lockout-tagout, the person responsible must date the data sheet and ensure that each worker involved in the work on the circuit/piece of equipment to lockout-tagout puts his name on the data sheet and signs it.

1.23 ELECTRICAL WORK

- .1 Contractor shall ensure that all electrical work is executed by qualified employees in accordance with the provincial regulation respecting vocational training and qualification.
- .2 Contractor shall respect all requirements of standard CSA Z462 Workplace Electrical Safety Standard.
- .3 No repairs or alterations shall be carried out on any live equipment except where complete disconnection of the equipment is not feasible.
- .4 Contractor shall respect all requirements prescribed in paragraph "LOCKOUT-TAGOUT" in this section.
- .5 Contractor shall advise in writing the Departmental representative of all the work that cannot be done with de-energized equipment and obtain his authorization. Contractor shall demonstrate to the Departmental representative that it is impossible to do the work with de-energized equipment and provide all the information necessary to request and obtain an energized electrical work permit (indicate working procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) before the beginning of the work, excluding for the exceptions indicated in standard CSA Z462 Workplace electrical safety.
- .6 The energized electrical work permit on must contain at least the following elements:
 - .1 description of the circuit and equipment and its location;
 - .2 justification for having to do the work in an energized condition;
 - .3 description of safe work practices to apply;
 - .4 results of the shock hazard analysis;
 - .5 limit of the protective perimeter against electric shocks;
 - .6 results of the arc flash hazard analysis;
 - .7 description of the arc flash protection boundary;
 - .8 description of the personal protective equipment required;
 - .9 description of the means to limit access to unqualified persons;
 - .10 proof that an information session has been carried out;
 - .11 approval signature of the energized electrical work (by a person in authority or by the owner).
- .7 If for the operational requirements of the occupants of the site the representative of the site requires that the Contractor performs work in an energized condition, the Contractor shall obtain all the information required to request and obtain an energized electrical work permit (indicate working procedures, arc flash hazard analysis, protective perimeter, protective equipment, etc.) and have it signed by the representative of the site assigned by the Departmental representative before the beginning of the work.

1.24 HAZARDOUS MATERIALS

- .1 Refer to appendix 02 41 99 – Specifications for hazardous materials management and work in mold and lead condition. A report on the characterization of hazardous substances in buildings of the Canadian border services in Saint-Bernard-de-Lacolle" was prepared to identify hazardous materials that may be encountered and the measures to take for their removal.
- .2 Characterization includes without being limited to the following: exposure to asbestos, mould contamination, lead paint, mercury, halocarbons, PCBs, urea formaldehyde foam and bird excrement (droppings).

1.25 RESPIRATORY PROTECTION

- .1 Contractor must ensure that all workers who must wear a respirator as part of their duties have received training for that purpose as well as fit testing of their respirator, in accordance with CSA Standard Z94.4 Selection, use and care of respirators. Submit the certificates of the fit testings to the Departmental representative on demand.

1.26 FALL PROTECTION

- .1 Plan and organize work so as to eliminate the risk of fall at the source or ensure collective protection, thereby minimizing the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness that complies with CSA standard CAN/CSA Z-259.10 M90. A safety belt must not be used as fall protection.
- .2 Every person using an elevating platform (scissors, telescopic mast, articulated mast, rotative mast, etc.) must have a training regarding this equipment.
- .3 The use of a safety harness is mandatory for all elevating platforms with telescopic, articulate or rotative mast.
- .4 Define the limits of the danger zone around each elevating platform.
- .5 All openings in a floor or roof must be surrounded by a guardrail or provided with a cover fixed to the floor able to withstand the loads to which it could be exposed, regardless of the size of the opening and the height of the fall it represents.
- .6 Everyone who works within two metres from a fall hazard of three metres or more must use a safety harness in accordance with the requirements of the regulation, unless there is a guardrail or another device offering an equivalent safety.
- .7 Despite the requirements of the regulation, the Departmental representative may require the installation of a guardrail or the use of a safety harness for specific situations presenting a risk of fall less than three metres.

1.27 SCAFFOLDINGS

- .1 In addition to the requirements of the Code de sécurité pour les travaux de construction (Safety code for the construction industry), the Contractor who uses scaffoldings must respect the following requirements:
- .2 Foundation :
 - .1 Scaffoldings shall be installed on a solid foundation so that it does not slip or rock.
 - .2 Contractors wishing to install scaffoldings on a roof, overhang, canopy or awning shall submit their calculations and loads, as well as plans signed and sealed by an engineer to the Departmental representative and obtain his authorization before beginning installation.

- .3 Assembly, bracing and mooring
 - .1 All scaffoldings shall be assembled, braced and moored in accordance with the manufacturer's instructions and the provisions of the Code de sécurité pour les travaux de construction (Safety code for the construction industry).
 - .2 Where a situation requires the removal of part of the scaffoldings (e.g., crosspieces), the Contractor shall submit to the Departmental representative an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be done safely given the loads to which it will be subject.
 - .3 For scaffoldings where the span between two supports is greater than three metres, the Contractor shall provide the Departmental representative an assembly plan signed and sealed by an engineer.
- .4 Protection against falls during assembly
 - .1 Workers exposed to the risk of falling more than three metres shall be protected against falls at all times during assembly.
- .5 Platforms
 - .6 Scaffolding platforms shall be designed and installed in accordance with the provisions of the Code de sécurité pour les travaux de construction (Safety code for the construction industry).
 - .7 If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the Code de sécurité pour les travaux de construction (Safety code for the construction industry)
 - .8 Scaffoldings of four sections (or six metres) high or more shall have a full platform covering the entire surface between the putlogs every three metres high or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.
- .6 Guardrails
 - .1 A guardrail shall be installed on every landing.
 - .2 Cross braces shall not be considered as guardrails.
 - .3 If the platforms are not covering the entire surface between the putlogs, the guardrail must be installed just above the edge of the platform so that there is no empty horizontal space between the platform and the guardrail.
 - .4 Where scaffoldings has four sections (or six metres) high or more and full platforms are required, the guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.
- .7 Access
 - .1 The Contractor shall ensure that access to the scaffoldings does not compromise worker safety.
 - .2 Where the platforms of the scaffoldings are comprised of planks, ladders shall be installed in such a way that planks extending beyond the platform do not block the way up or down.
 - .3 Notwithstanding the provisions of the Code de sécurité pour les travaux de construction (Safety code for the construction industry), stairs shall be installed on all scaffoldings that have six or more rows of uprights or is six sections (or nine metres) high or higher.
- .8 Protection of the public and occupants
 - .1 When scaffoldings are installed in a zone accessible to the public, the Contractor shall take the necessary measures to prevent the public from having access to them and, if applicable, to the work or storage area located in the vicinity of these scaffolding.
 - .2 Contractor must install covered walkways, nets or other similar devices to protect workers, the public and the occupants against falling objects. The means of protection must be approved by the Departmental representative.
- .9 Engineering plans

- .1 In addition to those required by the Code de sécurité pour les travaux de construction (Safety code for the construction industry), the Departmental representative reserves the right to require engineering plans for other types or configurations of scaffoldings.
- .2 A plan signed and sealed by an engineer is required for all scaffoldings that will be covered with a canvas, a tarpaulin or any other material that has wind resistance.
- .3 A certificate of conformity signed by an engineer is required in all cases where an engineering plan is required and this, before anybody uses the facility. A copy of these documents must be available on the construction site at all times.

1.28 CONFINED SPACES

- .1 In addition to the requirements of the provincial regulation applicable to confined spaces, the Contractor must respect the requirements in the following paragraphs.
- .2 The Departmental representative reserves the right, depending on the nature of the risk of the confined spaces, of the work to be done and/or of the level of competence in confined spaces demonstrated by the Contractor, to require from the latter that he use the services of a firm specialized in health and safety or in confined space work to perform the analysis of the risks inherent to the confined spaces, to complete the entry permit, to conduct surveillance of the work or for any other task related to the work in confined spaces.
- .3 Person in charge of the health and safety for the work in confined spaces
 - .1 The Contractor shall designate a person to be in charge of the health and safety for the work in confined spaces. This person shall be qualified, as defined in the article 297 of the Règlement sur la santé et la sécurité du travail (S-2.1, r.13) (Occupational Health and Safety Regulation). This person must be present at all times during work in confined spaces and must make sure that all the requirements of the regulation and the ones specified in this section are respected. This person must amongst other things fill out and issue the entry permit for the confined spaces.
- .4 Training
 - .1 All persons having access to a confined space, including the person in charge and the watcher of the confined space shall have completed training on entry in confined spaces.
 - .2 All persons who have to use supplied-air respirator to access the confined spaces shall have completed training on the use of these apparatus.
 - .3 All persons identified as rescuers for confined spaces shall have completed training on confined spaces rescue.
 - .4 Each training required in the preceding paragraphs must be provided by a firm specialized in health and safety or in confined spaces.
 - .5 The training certificates of the persons mentioned above must be submitted to the Departmental representative before the beginning of the work in confined spaces.
- .5 Risk assessment of confined spaces
 - .1 For each of the confined spaces listed at the beginning of this article, the Contractor must obtain the necessary information from the site representative and proceed to the assessment of the risk inherent to each confined space and relative to:
 - .1 the prevailing internal atmosphere, namely the concentration of oxygen, inflammable gases and vapours, combustible or explosive dusts as well as the categories of contaminants likely to be present in this enclosed area or nearby;
 - .2 the fact that the natural or mechanical ventilation is insufficient
 - .3 The materials that are present there and that can cause the worker to sink, to be buried or to drown, such as sand, grain or a liquid;
 - .4 the interior configuration;
 - .5 pipes and conduits penetrating the confined space;

- .6 energies such as electricity, moving mechanical parts, heat stress, noise and hydraulic energy;
- .7 ignition sources such as open flames, lighting, welding and cutting, static electricity or sparks;
- .8 all other particular circumstances, such as the presence of vermin, rodents or insects.
- .2 These risk assessments must be done by the person in charge of the health and safety of the work in confined spaces. They must be submitted to the Departmental representative for analysis at least 10 days before the proposed date for the work in confined spaces and they must also include the following information:
 - .1 location of the confined space;
 - .2 description of the confined space;
 - .3 dimensions of the confined space;
 - .4 number, location and dimensionS of the openings;
 - .5 content of the confined space (material, substances, etc.)
 - .6 date of the assessment;
 - .7 name and signature of the person who conducted the assessment and the name of his employer.
- .3 The Contractor must repeat the same process for each of the confined spaces that he will build/install during this project.
- .6 Confined spaces entry permits
 - .1 At least 5 days before the scheduled date for the work in a confined space the Contractor must submit for analysis to the Departmental representative a copy of each entry permit specific to the confined spaces where he must access. The entry permits must be completed by the person in charge of the health and safety of the work in confined spaces, and must contain the following information as a minimum:
 - .1 description of the work that will be carried out and the method of work, including the materials and tools needed to do this work;
 - .2 description of the risks and corresponding preventive measures according to the risk assessment inherent to the confined space done previously and according to the work to be carried out;
 - .3 safety equipment that will be used to control the risks of confined spaces (e.g.: fan, gas detectors, local exhaust ventilation, personal protective equipment, etc.);
 - .4 rescue procedure covering at least the following:
 - .5 means of communication between the supervisor of the confined space and the workers in the confined space;
 - .6 lifesaving equipment specific to each confined space;
 - .7 confirmation that the municipal emergency response service has been advised that work in confined spaces would be going on at this specific construction site and that they may intervene do to a confined space rescue; otherwise, the Contractor must identify the workers on the construction site that will act as rescuers in a confined space in the case where such rescuers must enter the confined space (rescue training is mandatory);
 - .8 location of telephone and phone number of the municipal emergency response service (if applicable);
 - .9 date of entry permit;
 - .10 name of person who issued the permit and the name of his employer;
 - .11 name of the confined space safety watcher and the name of his employer;

- .12 name of the workers who must enter the confined space and the name of each one's employer.
- .2 In cases where the site representative requires the use of a confined space entry permit specific to his site, the Contractor must comply with the requirements of that permit.
- .7 Medical surveillance
 - .1 The Contractor must submit to the Departmental representative a medical certificate dated in the last two years for all persons who must use a supplied-air respirator. The certificate must confirm the ability of each person to use this type of apparel.
 - .2 It is recommended that the persons who have to work in sewer collection systems or other similar systems be vaccinated against diphtheria, tetanus and hepatitis "B".
- .8 Requirements while working in confined spaces
 - .1 Before each entry into a confined space, the person in charge of the health and safety for the work in confined spaces shall take readings of oxygen concentration, flammable gases and all toxic gases likely to be present and record these readings on the entry permit required earlier.
 - .2 No worker can access the confined space if the following requirements are not respected:
 - .1 the concentration of oxygen shall be greater than or equal to 19.5% and less than or equal to 23%;
 - .2 the concentration of inflammable gases or vapours shall be less than or equal to 10% of the lower explosion limit;
 - .3 the concentration of other gases must not exceed the standards prescribed in annex I of the Règlement sur la santé et la sécurité du travail (S-2.1, r.13) (Occupational Health and Safety Regulation).
 - .3 If the oxygen and gas concentrations measured respect the regulatory values, the person in charge of the health and safety for the work in confined spaces must ensure that all preventive measures indicated on the permit are in place and then must complete the entry permit (date, time, signatures, etc.) before issuing the permit and allow entry into the confined space.
 - .4 A permit is only valid for one work shift; the Contractor must submit a new permit for each extra shift.
 - .5 During the work inside the confined space, the gas concentration must be measured continuously and the gas detector must be installed at the level of the breathing area of the workers. If the conditions inside the confined space are such that the workers might not hear/see the detector's alarm, the Contractor must find a way for the confined space safety watcher to watch the concentration measures while maintaining the measurements at the level of the breathing zone of the workers.
 - .6 If the work is organized in a way that the workers are scattered far away from each other in a large confined space, the Contractor needs to provide additional gas detectors.
 - .7 The Contractor must provide the gas detectors and maintain them in good condition. He must be able to show that the gas detectors used have been calibrated and adjusted by the person in charge of the health and safety for the work in confined spaces or by a qualified person, in accordance with the manufacturer's recommendations. The Departmental representative can at all times have the accuracy of the measuring devices checked. In the event of the failure of a detection device, the work must be stopped immediately and all workers must leave the confined space.
 - .8 The manufacturer's manual of the gas detectors must be available on the construction site.
 - .9 The Contractor shall provide a ventilation system to keep concentrations of contaminants below the regulatory limits.

- .10 If work generating contaminants are performed (welding, use of products, etc.), the Contractor must, if needed, install an aspiration system for the contaminants so that the regulatory values of air quality can be maintained at all times.
- .11 If a detecting device alarm goes off, all workers shall leave the confined space. The measured levels of concentration must then be recorded on the entry permit. The Contractor shall then find the source of contamination, neutralize it, ventilate the confined space to eliminate contaminant residues and authorize access to the confined space only when concentrations of oxygen and gas have returned to normal.
- .12 Compressed gas cylinders or welding equipment shall not be brought into confined spaces: this equipment shall remain outside and shall not block entrances or exits; all cylinders shall be properly secured.
- .13 Tools and electrical devices used to work in the confined spaces shall be grounded and, when necessary, designed to be explosion-proof. All equipment must be connected to a ground fault interrupter outlet or to a step-down transformer. The Contractor shall, at his own cost, hire a qualified electrician to adjust power receptacles and/or circuit breakers that he intends to use which do not meet these criteria.
- .14 The Contractor shall obtain a Hot Work Permit and respect the requirements to that effect when the work to be carried out includes hot work.
- .15 The Contractor must assign a competent person to assume the duties of confined space safety watcher. The supervisor shall be exclusively dedicated to these duties and must constantly remain outside of the confined space as long as there is a worker in it. He must also:
 - .1 ensure that the entry permit has been filled, signed and posted near the confined space;
 - .2 be familiar with the work procedure specific to the confined space and ensure that it is respected;
 - .3 ensure continuous communication with all the workers in the confined space and ensure that all the equipment required in case of emergency is present;
 - .4 have a good knowledge of the ventilation systems and ensure their proper functioning for the duration of the work;
 - .5 prevent access to unauthorized persons;
 - .6 ensure that the conditions around the confined space zone is not a health or security risk for the workers inside the confined space;
 - .7 initiate the emergency procedure if needed.
- .16 The same person may act as a confined space safety watcher and as the person in charge of the health and safety of the work in confined spaces, provided all requirements of both functions are met.

1.29 EXCAVATION WORK

- .1 In addition to the requirements of the Code de sécurité pour les travaux de construction (Safety code for the construction industry), the Contractor who performs the digging of trenches or excavations must respect the following requirements:
 - .1 Fill out the following form and submit it to the Departmental representative before beginning to excavation work.
 - .2 Submit to the Departmental representative, as appropriate, the following documents:
 - .1 plans and specifications, signed and sealed by an engineer, of the shoring needed to be installed for the excavation work; or
 - .2 engineer's advice specifying the wall angles of the trench or excavation.



Excavation guidelines

N° _____ of _____

This directive is provided as an example by the Commission de la santé et de la sécurité du travail (CSST). It contains the main instructions that the employer should give to the person responsible for the work on the site and to the operator of the earth-moving machine.

Company name	
Project name	Project no.
Address of the site	Construction start date

Field survey

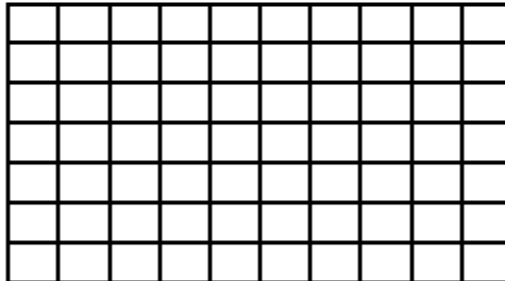
Chaining or axes: from _____ to _____ Attached plan ☐ Plan no. : _____

Working method to use

While making sure the excavation walls do not pose the risk of landslide

- ☐ dig and shore according to the plans and specifications of the engineer;
- ☐ dig and shore using a trench box;
- ☐ dig without shoring as long as one of the following conditions is respected:
 - ☐ rock is sound;
 - ☐ no worker goes down in the trench or excavation;
 - ☐ the walls are dug according to the engineer's advice.

Dimensions of excavation (Dig according to the following profile.)



	Minimum	Maximum
H Depth		
Wb Width at bottom		
Width at top		

Safety measures

Deposit the materials at a distance of at least 1.2 metre (4 feet) from top of walls.
Do not allowed any vehicle to come closer than 3 metres (10 feet) from top of walls.

- ☐ Respect the engineer's plan concerning work in the proximity of an existing facility.
- ☐ Follow the location plan to locate the underground infrastructures.
- ☐ Install signaling devices prescribed in the traffic plan (barriers, visual references, etc.).
- ☐ Assign a flag person or more to control the flow of traffic.
- ☐ Respect the procedure prescribes for work near power lines.
- ☐ Provide protection devices for the workers, such as concrete crash barriers.

Name	Occupation	
Signature	Date	Telephone no.
Directive submitted <input type="checkbox"/> to the responsible of the work on the site <input type="checkbox"/> to the operator of the earth-moving machine		

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1.30 LIFTING LOADS WITH CRANE OR BOOM TRUCK

- .1 Unless specified otherwise, the Contractor must prepare a hoisting plan and submit it to the Departmental representative for all lifting operations done with a crane or a boom truck at least 5 days before these lifting operations begin. The hoisting plan must contain at a minimum the information listed at the end of this article.
- .2 The hoisting plan must be signed and sealed by an engineer for the following lifting operations:
 - .1 lifting of concrete panels;
 - .2 lifting mechanical/electrical equipment on a roof or on the floor of a building;
 - .3 lifting of loads encroaching on the public road;
 - .4 lifting large dimension or very heavy loads;
 - .5 all other lifting operation, in accordance with the requirements of the Departmental representative.
- .3 In addition to the above requirements, the Contractor must plan the hoisting operations in a way as to avoid that the loads pass over the occupied zones on the site. When there is no alternative, the hoisting plan must absolutely be signed and sealed by an engineer and must guarantee the security of the occupants in that zone; the plan must also be approved by the Departmental representative. The Departmental representative can, if he deems necessary, require that the work be done at night or on weekends.
- .4 Upon the beginning of the work on the construction site, the Contractor must submit the list of the hoisting plans anticipated for the whole project to the Departmental representative. That list shall be updated as needed if changes occur during the work.
- .5 In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all cranes and boom truck cabs.
- .6 The entire lifting area shall be marked off to prevent the entry of non-authorized persons.
- .7 The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed and scrapped.
- .8 Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.
- .9 Minimum content of hoisting plan
 - .1 Sketch indicating at a minimum, the location of the crane, the surrounding facilities, the zone covered by the hoisting operations, the pedestrian's pathways and vehicular routes, the security perimeter, etc.
 - .2 Weight of loads
 - .3 Dimensions of loads
 - .4 List of hoisting devices and weight of each
 - .5 Total weight lifted
 - .6 Maximum height of obstacles to clear
 - .7 Height of loads lifting relative to the surface of the roof (in the case of loads to be placed on roofs)
 - .8 Use of guide cables
 - .9 Type of crane used
 - .10 Crane capacity
 - .11 Boom length
 - .12 Boom angle
 - .13 Crane's radius of action
 - .14 Deployment of stabilizers
 - .15 Percentage usage of the crane's capacity
 - .16 Verification confirmation of hoisting equipment
 - .17 Identification of the crane operator and the person responsible for the hoisting operations with date and signatures

1.31 HOT WORK

- .1 Hot work means any work where a flame is used or a source of ignition may be produced, i.e., riveting, welding, cutting, grinding, burning, heating, etc.
- .2 Before the beginning of each shift of work and for each sector, the Contractor must obtain a "Hot Work Permit" emitted by the person responsible for the site.
- .3 A working portable fire extinguisher suitable to the fire risk shall be available and easily accessible within a 5 m radius from any flame, spark source or intense heat.
- .4 The Contractor must appoint an individual to do continuous monitoring of the fire risks for a period of one (1) hour after the end of the shift of hot work. This individual shall sign the section for this purpose on the permit and give it to the person in charge of the construction site after the one-hour period.
- .5 When the hot work is done in areas where there is combustible materials or where the walls, ceilings or floors are made of or covered with combustible materials, a final inspection of the work area must be scheduled four (4) hours after the work has finished. Unless specified otherwise by the Departmental representative, the Contractor must assign a person to carry out this monitoring.
- .6 Welding and cutting
 - .1 In addition to the requirements prescribed in the preceding paragraphs, the Contractor must respect the following requirements:
 - .1 Welding and cutting work must be carried out in accordance with the requirements of the Code de Sécurité pour les travaux de construction, S-2.1, r.4 (Safety code for the construction industry) and CSA standard W117.2, Safety in Cutting, Welding and Allied Processes.
 - .2 Air extraction system with filters must be used for all welding and cutting work performed inside.
 - .3 Stop all activities producing flammable or combustible gas, vapours or dust in the vicinity of the welding or cutting work.
 - .4 Store all compressed gas cylinder on a fireproof fabric and make sure that the room is well ventilated.
 - .5 Store all oxygen cylinders more than 6 metres from a flammable gas cylinder (ex: acetylene) or a combustible such as oil or grease, unless the oxygen cylinder is separated from it by a wall made of non-combustible material as mentioned in the article 3.13.4 of the Code de sécurité pour les travaux de construction, S-2, r. 6 (Safety code for the construction industry)
 - .6 Store the cylinders far from all heat sources.
 - .7 Not to store the cylinders close to the staircases, exits, corridors and elevators.
 - .8 Do not put acetylene in contact with metals such as silver, mercury, copper and alloys of brass having more than 65% copper, to avoid the risk of an explosive reaction.
 - .9 Check that welding equipment with electric arc has the necessary tension and are grounded.
 - .10 Ensure that the conducting wires of the electric welding equipment are not damaged.
 - .11 Place the welding equipment on a flat ground away from the bad weather.
 - .12 Install fireproof canvas when the welding work is done in a superposition and where there is the risk of falling sparks.
 - .13 Move away or protect the combustible materials which are closer than 15 metres from the welding work.
 - .14 Prohibition to weld or cut any closed container.
 - .15 Do not perform any cutting, welding or work with a naked flame on a container, a tank, a pipe or other container containing a flammable or explosive substance unless:

- .1 they have been cleaned and air samples indicating that work can be done without danger has been taken; and
- .2 provisions to ensure the safety of the workers have been made.

1.32 ROOFING WORK

- .1 Protection against fall from heights
 - .1 Installation of guardrails is mandatory at all times; however, the installation of a warning line is allowed to define the limits of the work zones provided that all the requirements of the articles 2.9.4.0 and 2.9.4.1 of the Code de sécurité pour les travaux de construction (Safety code for the Construction Industry) are respected.
 - .2 The guardrails must remain in place until the end of the project. The Departmental representative will authorize their dismantling when he can confirm that all the work, inspections and corrections have been made.
 - .3 Workers installing guardrails must wear safety harnesses.
 - .4 Workers installing and modifying guardrails or flashing shall wear safety harnesses in the event guardrails must be moved temporarily.
 - .5 Workers shall wear safety harnesses when receiving material and giving directions to the crane operator next to a drop.
 - .6 Safety harnesses shall be worn when carrying out work next to a drop where collective protection is not sufficiently safe.
 - .7 The Contractor shall provide a fastening method and safety cable system compliant with section 2.10.12 of the Code de sécurité pour les travaux de construction (L.R.Q., S-2.1, r.4) (Safety code for the Construction Industry) for each construction site or location.
- .2 Lifting of materials
 - .1 For all winch installations, the Contractor shall provide the Departmental representative with the installation method recommended by the manufacturer. If unavailable, the Contractor shall then provide an installation procedure signed and sealed by an engineer. The installation procedure must take into account load-bearing capacity, the amount, weight and location of counterweight and any other detail that may affect the capacity and stability of the device.
 - .2 The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed or scrapped.
 - .3 Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.
 - .4 In all cases where a crane or boom truck is used, the Contractor must respect the requirements of the paragraph Lifting Loads With Crane or Boom Truck, in this section.
- .3 Protection against burns
 - .1 Individuals assigned to the boilers shall wear long sleeves, safety glasses and a face shield when filling the boilers.
 - .2 Individuals working with asphalt or other hot liquids shall wear gloves, long sleeves and safety glasses.
- .4 Protection against fire
 - .1 The storage and use of propane cylinders shall comply with the standard CAN/CSA-B149.2, Propane Storage and Handling Code. The cylinders shall be stored outdoors, in a safe place, away from any unauthorized handling, in a storage cabinet specially designed for this purpose. The cylinders shall be securely kept upright and locked at all times in a place where no vehicles are allowed unless the cylinders are protected by barriers or similar protection.
 - .2 The number of propane cylinders on the roof shall not exceed the number of cylinders necessary for a day's work, and cylinders shall at all times be secured upright or held in a cart designed for this purpose.

- .3 All hot work (burning, heating, riveting, welding, cutting, grinding, etc.) must be done in accordance with paragraph "Hot Work" in this section.
- .5 Material and waste management
 - .1 On the roof, light material and sheet material shall be kept in containers or be securely fastened. In the event this requirement is disregarded in the slightest way, the Departmental representative may disallow the storage of materials on the roof.
 - .2 Waste shall be discarded as produced using a waste chute or appropriate containers. The Contractor shall provide the means to prevent waste from being carried away by the wind.
 - .3 All waste must be removed from the roof at the end of shifts.
 - .4 Unless otherwise authorized by the Departmental representative, all waste bins must be placed at least 3 m from any structure or building.
- .6 Protection of occupants and the public
 - .1 Contractor must install covered passageways, nets or other devices above the entrances and the exits of the building to protect the workers, the public and the occupants against falling object. The means of protection must be approved by the Departmental representative.
 - .2 A safety perimeter on the ground must be placed under the work zone in order to protect the workers, the public and the occupants.
 - .3 The ground construction site, material handling area and boiler area shall be clearly sealed off to prevent occupants or the public from accessing the construction site and areas.
 - .4 Before installing any device that may emit gas or fumes, the Contractor shall receive authorization from the person in charge of the construction site, who shall make sure that there is no risk of gas or fumes infiltrating the building's ventilation system.

1.33 STEEL STRUCTURE ERECTION OR DISMANTLING WORK

- .1 In addition to respecting section 3.24 du Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the Construction Industry), the Contractor must also respect the requirements described in the following paragraphs.
- .2 Contractor must submit the following documents to the Departmental representative before the beginning of steel structure erection work:
 - .1 erecting procedures in accordance with article 3.24.10 du Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the Construction Industry);
 - .2 rescue procedures for the release of a worker suspended in a safety harness within a maximum of 15 minutes; procedures must be adapted to the construction site and in accordance with article 3.24.4 of that same code; the procedure must be accompanied by a written confirmation that it has been tested;
 - .3 statement from an engineer that the anchor rods have been installed in accordance with the anchoring plan as required by the article 3.24.12 of that same code;
 - .4 hoisting procedures in cases where the lifting is done in one of the ways described in the article 3.24.15 of that same code;
 - .5 name of the individual identified as rescuer and his rescue training certificate;
 - .6 name of the individual identified as first-aid attendant and his first-aid training certificate.
- .3 The Contractor must make sure that the following documents are available for consultation on construction site at all times:
 - .1 Steel structure manufacturer's erection plan in accordance with the requirements of article 3.24.9 du Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the Construction Industry);
 - .2 Column anchor rods's anchoring plan in accordance with the requirements of article 3.24.11 du Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the Construction Industry).

1.34 INTERIOR USE OF INTERNAL COMBUSTION ENGINES

- .1 In addition to respecting article 3.10.17 of the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the Construction Industry), the Contractor must also respect the requirements described in the following paragraphs.
- .2 The use of a gas-powered equipment inside a building is prohibited even if the building is provided with openings.
- .3 The use of other equipment powered by an internal combustion engine inside a building must be submitted to the approval of the Departmental representative.
- .4 For the use of any piece of equipment powered by an internal combustion engine inside a building, even if the building is provided with openings, the Contractor must install a ventilation system able to maintain the concentrations of toxic gases below the regulatory values. The stale air shall be exhausted outside the building.
 - .1 Before using equipment powered by an internal combustion engine, the Contractor must plan and write the following:
 - .2 number of fans to install;
 - .3 power of the fans;
 - .4 location of the fans;
 - .5 dimensions of the openings that will be open during the work.
- .5 During the operation of equipment with internal combustion engine, the Contractor must measure the concentrations of carbon monoxide and nitrogen oxides in the work area and at the breathing area of the workers; the concentration levels measured must be recorded in a register every 30 minutes that must be available for consultation.
- .6 If work is in an occupied building, the Contractor must also measure the concentrations of carbon monoxide and nitrogen oxides in the rooms next to the work area and the concentration levels measured must be recorded in a register every 30 minutes.
- .7 If the carbon monoxide or nitrogen oxides detector alarm goes off during the work, the Contractor must stop the work and take the corrective measures required before resuming the work.
- .8 A portable fire extinguisher must be available at all times in the work area during the use of equipment with internal combustion engines.
- .9 The equipment must be maintained at a safe distance from all combustible material.
- .10 The storage of fuel for any equipment with internal combustion engine is prohibited inside a building.

1.35 TEMPORARY HEATING

- .1 In addition to respecting section 3.11 of the Code de sécurité pour les travaux de construction (S-2.1, r.4) (Safety code for the Construction Industry), the Contractor must also respect the requirements described in the following paragraphs.
- .2 A portable fire extinguisher must be available at all times near the heating units, no matter what type of heating is used.
- .3 The heating units must always be used in accordance with the manufacturer's specifications.
- .4 If applicable, the canvas or tarpaulins used next to the heating units must be solidly fixed so as not to be projected on the heaters, on the pipes connected to the heaters or on any other heat source.
- .5 The gas cylinders must be installed in a way that they are protected from vehicle and other equipment traffic.

- .6 For the use of heating units other than electric, the Contractor must install a carbon monoxide detector in the work area, next to the heating units and/or the workers, throughout the course of the heating period. The Contractor must immediately apply the corrective measures required to the heating units if the detector's alarm goes off.
- .7 The Contractor must ensure a minimum surveillance of the heating units outside the hours of work (nights and weekends). He must submit a surveillance plan to the Departmental representative before the use of the heating units.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

HEALTH AND SAFETY SUBORDINATION AGREEMENT

Project: _____ **Address:** _____

EXTERNAL CONTRACTOR

I hereby agree to submit to the authority of (name of the Principal Contractor's business) _____, which is the Principal Contractor for the project indicated above during the entire duration of our work on the construction site. Accordingly, I confirm that I have reviewed the Principal Contractor's prevention program, and I agree to:

- inform my employees of the content of the Principal Contractor's prevention program and ensure that its content are complied with at all times;
- apply the prevention program that is specific to the activities that we carry out under this project;
- inform the Principal Contractor of my actions or dealings on the construction site and obtain the Principal Contractor's agreement before the start of work; and
- follow the health and safety directives provided by the representative of the Principal Contractor on the construction site and, depending on requirements, attend training sessions and health and safety meetings organized by the representative of the Principal Contractor.

Name of representative: _____

Name of business: _____

Description of work to be done on the construction site: _____

Approximate dates of work (start-end): _____

Signature: _____ Date: _____

PRINCIPAL CONTRACTOR

I hereby agree to allow the business (name of external contractor) _____ to perform the work under this project indicated above and, as Principal Contractor, to take the necessary steps to protect the health and safety of workers on the construction site. Should the Contractor repeatedly refuse or fail to comply with my directives, I agree to inform PWGSC's Departmental representative of this and to provide documentary evidence of my actions or dealings with the Contractor.

Name of representative: _____

Name of the Principal Contractor's business: _____

Signature: _____ Date: _____

Submit a completed and signed copy to PWGSC's Departmental representative

END OF SECTION

Part 1 GENERAL

1.1 FIRES

- .1 Fires and burning of rubbish on site is not permitted.

1.2 WASTE DISPOSAL

- .1 Bury rubbish and waste materials on site where directed after receipt of written approval from Departmental Representative.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal, including mineral spirits, oil and paint thinner.

1.3 DRAINAGE

- .1 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .2 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 SITE CLEARING AND PLANT PROTECTION

- .1 Minimize stripping of topsoil and vegetation.

1.5 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area. Provide temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.6 ENVIRONMENTAL PROTECTION PLAN

- .1 Prepare and submit an environmental protection plan which includes a spill control plan with procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 INSPECTION

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

1.2 INDEPENDENT INSPECTION AGENCIES

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

1.3 ACCESS TO WORK

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

1.4 PROCEDURES

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

1.5 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.

- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.6 REPORTS

- .1 Submit four copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested, and to manufacturer or fabricator of material being inspected or tested.

1.7 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.8 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.9 MILL TESTS

- .1 Submit mill test certificates as required of specification Sections.

1.10 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
- .2 Refer to relevant Section for definitive requirements.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.3 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 WATER SUPPLY

- .1 Departmental Representative will provide continuous supply of water for construction use.
- .2 Take into consideration that the water on the site is non-potable.
- .3 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.5 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .5 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .6 Permanent heating system of building to be used or partially used when available and approved by Departmental Representative. Be responsible for damage to heating system if use is permitted. Use of permanent heating system, prior to its substantial performance, will have no impact on the warranty requirements as noted in specifications.
- .7 Restore portion of heating system used during construction before Date of Substantial Completion as specified in Division 23. Replace filters.

- .8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Departmental Representative.
- .9 Pay costs for maintaining temporary heat, when using permanent heating system. Departmental Representative will pay utility charges when temporary heat source is existing building equipment.
- .10 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.
- .11 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.6 POWER AND LIGHT

- .1 Contractor will pay for temporary power during construction for temporary lighting and operating of power tools. It is possible to connect to existing facilities (electrical panel : 400 A, 600 V, 3 phases). Set up a separate meter to identify the consumer for work. Organize the necessary connections.
- .2 Departmental Representative is not responsible for temporary power outages.
- .3 Arrange for connection with appropriate utility company.
- .4 Do not use temporary power for welding. Use generator for welding work.
- .5 Provide and pay for additional temporary power requirements during construction for temporary lighting and operating of power tools in accordance with regulations and codes in effect.
- .6 Provide central power panels to all subcontractors. Subcontractors will provide their own extension cords and adaptors.
- .7 Provide and be responsible for required switches, fuses, wiring and connections in accordance with Canadian Electrical Code.
- .8 Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of Departmental Representative.
- .9 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lux. Provide additional lighting as required by specific specification sections to ensure quality control.
- .10 Provide adequate lighting at night and during dark days to ensure work and inspections are properly carried out.
- .11 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps prior to Substantial Acceptance of Work.
- .12 Contractor is responsible for work required to provide temporary power and lighting.
- .13 Realize the temporary facilities required for the power supply of construction trailers of the contractor and the Departmental Representative (consultants and commissioners).

1.7 COMMUNICATION FACILITIES

- .1 Provide and pay for temporary telephone, fax, data, hook up, lines and equipment necessary for own use and use of Departmental Representative.

1.8 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and by governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CAN/CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A23.1/A23.2-14, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CAN/CSA-O121-08 (C2013), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-87 (C2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-F96(C2006), Signs and Symbols for the Occupational Environment.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Remove from site all such work after use.

1.4 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, platforms and temporary stairs.

1.5 HOISTING

- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment.
- .2 Hoists and cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Parking outside the identified zone is strictly forbidden. Parking on the site is entirely reserved for the Departmental representative.

1.8 SECURITY

- .1 Opening and closing of construction site perimeter is controlled by Departmental Representative. However, the Contractor is responsible at all times for site security.

1.9 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .4 Location of offices will be determined by Departmental Representative.

1.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.11 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.12 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.14 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-O121-08 (R2013), Douglas Fir Plywood.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 HOARDING

- .1 Erect temporary site enclosures using:
 - .1 Modular concrete Jersey barrier installed over compacted, level granular base.
 - .2 Chain-link fence as indicated on drawings; top of fence 2,4m from finished grade on exterior side of construction site perimeter.
 - .3 Exterior side of chain-link fence covered with 16 mm plywood panels end to end to form continuous surface with no gaps and no fastenings accessible from exterior side.
- .2 Paint public side of site enclosure in selected colours with one coat primer to CAN/CGSB 1.189 and one coat exterior paint to CGSB 1.59. Maintain public side of enclosure in clean condition.

1.4 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.5 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.6 DUST TIGHT SCREENS

- .1 Provide dust tight screens or [insulated] partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

1.7 ZONE RESERVED FOR CONTRACTOR AND ACCESS

- .1 Set aside zone inside security perimeter for trailers, toilets, parking, and storage of materials and waste bins.
- .2 Submit plan to Departmental Representative for approval.
- .3 Provide temporary work site access.
- .4 Upon completion of work, restore to original state including removal of access.
- .5 Ensure removal of snow in work zone, Contractor's zone and access road. Snow removal is the Contractor's responsibility from the work site opening date to final receipt of work.

1.8 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.9 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Departmental Representative 3 locations and installation schedule days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

- .1 Related sections

.1 None.

1.2 REFERENCES

- .1 U.S. Environmental Protection Agency (EPA)

.1 Construction General Permit 2003.

1.3 ITEMS TO BE SUBMITTED

- .1 Submit the requested documents in accordance with Section 01 33 00 –Submittal Procedures.

- .2 Erosion and Sediment Control Plan: two weeks prior to the start of the work, submit to the Departmental Representative the Erosion and Sediment Control Plan prepared for the work.

.1 The Erosion and Sediment Control Plan includes this section of the specifications with a location plan identifying areas where action is required. The location plan can be an annotated civil engineering drawing.

- .3 Photographic documentation: submit quality-control photographs each month to the Departmental Representative.

.1 Take photographs in accordance with the stated frequency, showing that the measures set out in the Erosion and Sediment Control Plan have been implemented and are being maintained.

.2 Photographs must be dated.

- .4 Inspection reports: submit inspection reports to the Departmental Representative each month.

.1 Carry out inspections in accordance with the stated frequency, draw up reports on the forms provided or recommended for this purpose. Identify every measure implemented, its status, and corrective measures that are to be or have been taken.

1.4 EROSION AND SEDIMENTATION CONTROL PLAN

- .1 Objectives

- .1 Prevent soil loss that can result from stormwater runoff or wind erosion.
.2 Prevent sediment deposits in storm sewers, public ditches and watercourses.
.3 Prevent air pollution from dust.
.4 Prevent contamination through spills, and mitigate spill situations.

- .2 Methods

.1 Determine runoff coefficients of the location at the start of the work and at the end of the work.

- .2 Determine general situations and special situations, by stages or operations, which may require control measures.
- .3 Special situations
 - .1 Mobilization.
 - .2 Interim stabilization.
 - .3 Excavation.
 - .4 Cofferdams.
 - .5 Use of heavy machinery.
 - .6 Stacking.
 - .7 Pile driving.
 - .8 Concreting (pile heads, footings, foundations, slab on grade).
 - .9 Disposal and delivery by truck.
 - .10 Erection of rough work.
 - .11 Backfilling.
 - .12 Shell closing (walls and cover).
 - .13 Landscaping of location (topsoil and paved surfaces).
 - .14 Hazardous substances and accidental spills.
 - .15 Deliberate spills (left-over concrete mixes from cement trucks or mortar mixer).
- .4 Models of measures or methods
 - .1 Sediment barrier (filter cloth) at the perimeter of the location.
 - .2 Protection of manholes (filter cloth) on the location and neighbouring public roadways.
 - .3 Creation of leaching basins and retention basins.
 - .4 Installation of filtering pumps.
 - .5 Disposal of sludge.
 - .6 Clean drainage of water from the site.
 - .7 Access to the site with cohesionless surfaces.
 - .8 System for washing incoming and outgoing vehicles.
 - .9 Abatement of dust raised by the wind or by machinery through misting.
 - .10 Protection of piled and stacked materials with weighted waterproof tarpaulins.
 - .11 Location of waste containers and portable toilets.
 - .12 Daily cleaning of highways (mechanical sweeper).
 - .13 Temporary seeding or soil stabilization geo-membranes.
 - .14 Safety measures for hazardous substances.
 - .15 Accidental spill prevention measures.
 - .16 Emergency measures for accidental spills.
 - .17 Control measures for deliberate spills (leftover concrete and mortar mixes): treat as construction waste, refer to 01 74 21 –Construction Demolition Waste Management and Disposal.
 - .18 Periodic maintenance and corrective measures.
 - .19 Periodic inspections.
 - .20 Inspection reports.

.3 Methodology

- .1 Prepare and submit the Erosion and Sediment Control Plan. The plan can be based on this section of the specifications with a drawing showing the measures selected on the location, as described under article 1.3 – Items to be submitted, in this section.
- .2 The Control Plan must conform to part 3 of the EPA Construction General Permit 2003.
- .3 The Control Plan must contain all situations, paired with methods, for the various construction phases, together with calculations and lists of equipment such as pumps, hoses and mist cannons, as well as inspection measures.
- .4 The Control Plan must include procedures for inspection, photograph taking, reporting and corrective measures, including the frequency of inspections, and forms for reports.
- .5 Put in place and maintain all the measures identified in the Erosion and Sediment Control Plan, in accordance with the schedule established for each stage.
- .6 Thoroughly document the measures provided for in the Erosion and Sediment Control Plan, in accordance with the inspections and corrective measures provided for in the Plan.

1.5 PROTECTION AGAINST EROSION AND SEDIMENTATION

- .1 Meet the requirements of the EPA Construction General Permit, and those of local regulations if the latter are more stringent.
- .2 The contractor is required to choose, present and deploy all the measures required by and identified in the Erosion and Sediment Control Plan.
- .3 Use construction methods that allow control of the drainage of surface water from earthmoving or backfilling work, borrow material or waste disposal areas, stockpiled materials, staging areas and other work areas. Prevent soil erosion and sediment transport.
- .4 Avoid stripping large areas at a time. Stabilize soils that have been disturbed as quickly as possible. Remove vegetation, reshape the terrain or landscape it differently so as to reduce erosion. Remove sediment buildups resulting from construction activities from adjoining areas and drainage systems and repair damage caused by soil erosion and by sediment transport in accordance with the Departmental Representative's instructions.
- .5 Provide and maintain temporary measures that may include: silt fences, geotextiles, drainage works, berms, terraces, temporary drainage pipes, sedimentation basins, plant cover, dikes and any other structure required to prevent the migration of silt, sludge and sediments and any other debris outside the location or towards other areas of the location where they could cause damage, as well as any other means that may be required by a law or regulation. Measures to prevent sediment transport or movement must be implemented during construction work.
- .6 Silt fence: prefabricated assembly, ready to be installed, consisting of a geotextile attached to poles that can be driven into the ground. The geotextile must have a uniform texture and appearance; it must have no defects, weak points, or tears liable to compromise its physical qualities. The geotextile must incorporate a UV inhibitor and stabilizers so that it will have a useful life of at least two years of outside use. It must be driven into the ground to a depth of at least 15 cm.

- .7 Support net: of industrial-quality polypropylene netting, attached to the geotextile at the top and base by means of a double-stitched seam using strong thread, at least 750 mm wide.
- .8 Poles: of wood, pointed, square section approximately 50 mm per side, extending beyond the geotextile at the base, of sufficient length for the geotextile to be driven at least 450 mm into the ground. The gap between poles must not exceed 2.4 m. The geotextile and the support net must be attached to the pole with appropriate staples.
- .9 Plan construction work in such a way as to avoid structures being damaged or equipment encroaching on bodies of water or on the banks of drainage ditches. Quickly take the necessary measures to mitigate the consequences of any damage that occurs. Restore any damaged banks and watercourses to their initial state.
- .10 Installation
 - .1 Build temporary erosion control works in accordance with stipulations.
 - .2 Check erosion control and sediment transport control structures once per week and after every rainfall; check them every day during periods of prolonged rainfall.
 - .3 When work such as removal of vegetation or reshaping is the cause of soil erosion and sediment transport, remove the eroded or transported materials from adjoining areas, drainage systems and watercourses, and repair the damage as quickly as possible.
 - .4 Unless otherwise instructed by the Departmental Representative, remove temporary erosion and sediment transport control devices once the work is completed. Spread accumulated sediment so as to form a suitable surface for seeding, or remove it, then shape the area concerned so as to allow natural drainage, to the satisfaction of the Departmental Representative. Removed materials become the property of the contractor.
- .11 When constructing backfilled areas, position materials selectively so as not to create erosive clayey areas or loamy areas at the surface.
- .12 Do not disturb existing banks or their protection.
- .13 Periodically inspect earthworks for signs of erosion and sediment transport. Take appropriate corrective measures without delay.
- .14 If soil constituents and debris accumulate in low points, storm sewers, roads, gutters, ditches or in other places deemed inappropriate by the Departmental Representative, remove them and restore the areas to their initial condition.

1.6 DEWATERING STRUCTURES

- .1 Dewater the various parts of the works, including but not limited to excavations, structures, foundations and work areas.
- .2 Employ construction methods, operating methods and precautions that will ensure that structures, including excavations, remain stable and dry and are not disturbed.
- .3 Structures can be dewatered using the following methods: shoring, strutting; groundwater control; control of surface water or open water by means of ditches, diversions, inlet wells,

conduits or pumps, as well as any other means necessary in order for the work to be carried out in dry conditions.

- .4 Supply the labour, tools and equipment necessary to keep work areas dry; also provide emergency equipment to ensure continuous operation of the dewatering system.
- .5 Take the necessary precautions to prevent the heaving of any structure or pipe or conduit and also to prevent excavations from being flooded or otherwise damaged by runoff water.
- .6 Drained water must be subjected to quality checks and analyses and subsequently, as needed, be treated in order to comply with drainage or treatment criteria.

1.7 WATER CONTROL

- .1 Keep excavations dry.
- .2 The location must be protected against both stagnant and running water. The ground must be sloped towards drainage facilities. Provide dams to protect the site against soil erosion and sediment transport.
- .3 Prevent runoff water from leaving work areas.
- .4 Draining contaminated water, runoff water or sediment-containing groundwater outside the site or into the municipal sewer is prohibited.
- .5 Prevent precipitation from leaking into stored materials or running off outside the storage area. Cover stored materials with an impermeable membrane during periods when work is stopped and after each day's work.
- .6 Direct runoff water that is free of sediment, or which has been decanted to remove sediment, to existing surface drainage systems.
- .7 Monitor surface drainage. This means, among other things, ensuring that gutters are free, and that water does not run over sidewalks or other hard surfaces, but through approved conduits or properly constructed trenches and chutes, and ensuring that runoff water from non-stabilized areas is intercepted and channelled to an appropriate facility.
- .8 Remove water so as not to imperil the health and safety of persons, and not to compromise the integrity of property and of any part of the work that has been completed or is progressing towards completion.
- .9 Supply, operate and maintain appropriate equipment, of sufficient power and flow rate to keep excavations, staging areas and other work areas free of water.
- .10 The contractor must have at his disposal appropriate pumping equipment, of a sufficient flow rate, as well as the attendant tanks and machinery, in good working order, to deal with ordinary emergencies, including power outages. He must have in his employ workers with the necessary skills to operate pumping equipment.
- .11 Contain and collect water containing sediment, decant it into separate, watertight basins, then transport it in drums or tanks to the sludge disposal areas certified by the Departmental Representative.

1.8 DUST AND PARTICULATE EMISSIONS

- .1 Perform the work in such a manner as to produce as little dust as possible.
- .2 Immediately implement dust and particulate control measures, in accordance with the Departmental Representative's requirements, and keep them in effect during the construction in compliance with relevant regulations and with the Erosion and Sediment Control Plan.
- .3 Take effective measures to prevent particulate matter from dispersing into the atmosphere. Use drinking water to supply a water-spray system to prevent the production of dust and particles.
- .4 Trucks used for the transportation of fine or dusty material must be fitted with appropriate covers.
- .5 Prevent dust from spreading onto adjoining land.
- .6 The Departmental Representative may stop the work at any time if he considers that the means employed by the contractor to reduce dust and particulates are insufficient given wind conditions on the site, or when air analyses indicate that the quantities of dust and particulates released into the atmosphere attain or exceed the prescribed levels.
- .7 Work must be stopped if measures implemented by the contractor to control emissions of dust and particulates into the atmosphere are insufficient. The contractor must make known the means he plans to use to remedy the situation, and he must modify operations in accordance with needs before resuming any activity (excavation, handling, treatment, etc.) liable to generate dust and particulates.

1.9 CLEANING OF VEHICLES AND EQUIPMENT

- .1 Maintenance and use:
 - .1 Prevent contamination of access roads. Immediately remove debris from access roads;
 - .2 Prevent contamination of public roads by sludge from the site;
 - .3 Use the mechanical sweeper as often as required to keep public roads clean.
- .2 Cleaning of vehicles and equipment must include at least the following:
 - .1 Using mechanical methods such as brushes and scrapers, remove dirt, abrasive particles and debris adhering to equipment. In order to reduce water consumption and the quantity of contaminated rinsing fluids, do not use steam or pressurized water jets.
 - .2 Pay particular attention to tire treads, caterpillar tracks, springs, linkages, gearwheels and drivetrains of vehicles. Scrub surfaces with long-handled scrubbing brushes using a cleaning product; rinse the scrubbed surfaces and recover rinsing fluids. Allow equipment to air-dry in the uncontaminated zone, before removing it from the location.
 - .3 Take the necessary measures, including the installation of wind screens, to minimize the transport of spray droplets during cleaning.

- .4 Collect sediments and wastewater resulting from cleaning operations that have accumulated at the cleaning stations. Transfer wastewater and treat sludge in the manner stipulated for sediments in this section.
- .5 The contractor must have at his disposal appropriate pumping equipment, of a sufficient flow rate, as well as the attendant tanks and machinery, in good working order, to deal with ordinary emergencies, including power outages. He must have in his employ workers with the necessary skills to operate pumping equipment. Pipes and connections must be maintained in good condition, free from leaks.

1.10 POLLUTION CONTROL, SPILL PREVENTION AND TREATMENT IN THE EVENT OF SPILLS

- .1 Supply the necessary methods, means and facilities to prevent contamination of the ground, water and atmosphere by harmful toxic substances and pollutants caused by construction activities.
- .2 The contractor must be ready to contain, clean and drain spills or discharges that may occur on water or land. He must keep the equipment and materials required to clean up spills or discharges on the location, within easy access.
- .3 Immediately report any spill or discharge liable to damage the environment:
 - .1 To the competent authority or the authority having an interest in connection with the spill or discharge, including the fire department as well as any conservation, water supply, drainage or highway management authority;
 - .2 To the owner of the pollutant, if known;
 - .3 To the person responsible for the pollutant, if known;
 - .4 To the Departmental Representative;
- .4 Contact the manufacturer of the pollutant, if known, and ascertain the dangers involved, the precautions required and the cleanup or mitigation measures to be deployed.
- .5 Immediately take measures, including the use of all available resources, to limit and mitigate the repercussions of the spill or discharge on the environment and on persons.
- .6 Supply equipment and materials for dealing with spills, including containers, absorbents, shovels and personal protection equipment. Equipment for handling or transporting hazardous materials or waste in the event of spills must be accessible at all times and be compatible with the type of materials to be handled.
- .7 Volatile organic compounds (VOCs)
 - .1 Measure volatile organic compound levels around the safety perimeter, in accordance with the Departmental Representative's instructions, every hour during operations involving the excavation and management of contaminated equipment and materials, and keep a log of air analysis results.
 - .2 If air analysis results show that the release of volatile organic compounds into the air, on the site, exceeds the threshold above which equipment providing level C individual protection must be worn, deploy the corrective measures necessary to reduce emissions of volatile organic compounds.
 - .3 If the corrective measures deployed do not succeed in reducing volatile organic compound emissions within half an hour following discovery of an air quality problem, stop the work that is causing these emissions. The contractor must

discuss additional means he intends to take to reduce these emissions with the Departmental Representative.

- .4 Before resuming work, make the necessary changes, at no additional cost.
- .5 In addition, if ambient air quality readings taken by the Departmental Representative at the site perimeter show an unacceptable concentration of contaminants in the air—that is, in excess of legal limits—change the work method such as to reduce repercussions outside the area.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .5 Conform to most recent version of reference standards in effect on opening date of tenders, unless an alternative version date is specifically noted already.

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Examine existing materials for reuse for this contract. Replace damaged or unsuitable materials with new.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.
- .3 Provide the following information on proposed materials and equipment a minimum of 10 days prior to written request of Departmental Representative:
 - .1 Manufacturer's name and address.
 - .2 Make, model and catalogue number.
 - .3 Performance data, descriptions and tests.
 - .4 Manufacturer's application and installation instructions.
 - .5 Proof of delivery agreement.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.6 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.8 COORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.9 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.10 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.11 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

1.12 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.15 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

1.16 REGIONALLY MANUFACTURED MATERIALS

- .1 Promote regionally manufactured materials : materials that are manufactured within a radius of 800 km from project location. Manufacturing refers to the final assembly of components into the building product that is installed at project site.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 Submittals

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Departmental Representative or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 Preparation

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.3 Execution

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.
- .12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

Part 2 PRODUCTS

2.1 Note used

- .1 Not used.

Part 3 EXECUTION

3.1 Note used

- .1 Not used.

END OF SECTION

Part 1 GENERAL

1.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Departmental Representative or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .3 Clear snow and ice from access to building. Bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .7 Dispose of waste materials and debris, off site, at the end of each day.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Seal all ventilation duct openings upon installation until Departmental Representative authorizes unsealing.
- .11 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.
- .14 Remove snow and ice in work areas, access roads to work areas and parking lot at the disposal of the Contractor.
- .15 Clean accesses outside work area after deliveries of equipment and material.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Departmental Representative or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .13 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .14 Remove dirt and other disfiguration from exterior surfaces.
- .15 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .16 Sweep and wash clean paved areas.
- .17 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .18 Clean roofs, downspouts, and drainage systems.
- .19 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .20 Remove snow and ice from access to building.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 RESIDUAL MATERIAL MANAGEMENT GOALS

- .1 PWGSC's Residual Material Management Goal is to reduce total construction/renovation/demolition (CRD) residual materials sent to landfill sites by 75%. Provide the Departmental Representative with documentation certifying that CRD residual material management has been extensively practiced (recycling, reuse of recyclable and reusable materials).

1.2 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by the Departmental Representative.
- .2 Unless specified otherwise, materials for removal become the Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate waste from salvaged items. Transport and deliver waste to licensed disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify the Departmental Representative.
- .7 Protect surface drainage, mechanical and electrical facilities from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.3 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner, into waterways, storm, or sanitary sewers.
- .3 Prepare

1.4 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference with, or disturbance to, normal use of premises.
- .2 Maintain security measures established by existing facility.

1.5 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

1.6 CLEANING

- .1 Separate at source residual materials to be reused or recycled and put them in the locations indicated.
- .2 Clean-up work area as work progresses.
- .3 Remove tools and residual and waste materials on completion of Work, and leave work area in a clean and orderly condition.

1.7 RECYCLING OF RESIDUAL MATERIALS

- .1 Complete and adapt as needed the table « JOB SITE WASTE STATEMENT » and provide it to the Departmental Representative.

1.8 JOB SITE WASTE STATEMENT (JSWS)

- .1 Schedule C – Job Site Waste Statement (JSWS)

(1) Material Description	(2) Quantity	(3) Units	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumptions
Concrete						
Asphalt						
Pallets						
Packaging						
Doors						
Windows						
Glass						
Floor coverings						
Furnishings						
Wood						
Metal						
Rubble						
Electrical equipment						
Mechanical equipment						
Other						

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and product data sheets using experience of maintenance personnel and operating procedures for products.
- .3 Submit copy annotated by Departmental Representative following final inspection.
- .4 Review contents of documents as required prior to final deposit of documents.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative four final copies of operating and maintenance manuals in French.
- .6 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .7 Provide evidence, if requested, for type, source and quality of products supplied.
- .8 Defective products will be rejected, regardless of prior inspections. Replace and pay for replacements.
- .9 Pay for transportation costs.

1.2 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.3 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project:
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Departmental Representative and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

- .5 Typewritten Text: as required to supplement product data:
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.4 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual provided by Departmental Representative.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications and field test records required by individual specifications sections.

1.5 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.6 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts. Give function, normal operation characteristics and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

1.7 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.8 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.9 EXTRA STOCK MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.10 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative.

1.11 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.

- .5 Remove and replace damaged products at own expense and for review by Departmental Representative.

1.12 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within [ten] days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION